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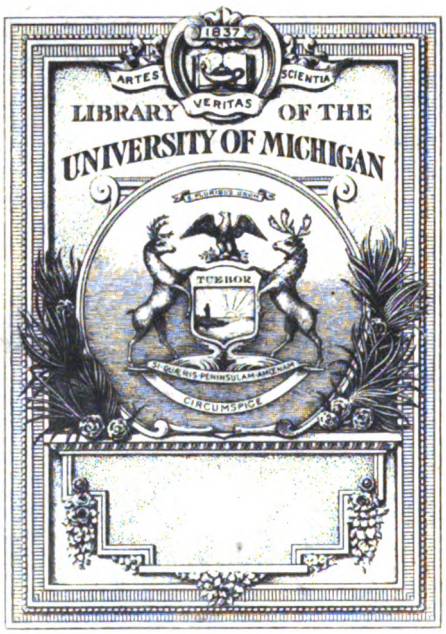
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SOME FACTORS IN BONE REPAIR.*

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WHEN confronted with a fracture of one of the long bones, the surgeon, like the anxious miner straining his vision for the first glitter of gold in the ground, is inclined often to focus his entire attention upon the local lesion with a zeal which would be highly commendable were it not for the fact that this fixation of his mind upon a single point is apt to result in the disregard of conditions operative at a distance from the broken bone, but nevertheless of important bearing upon its repair. His curative endeavors are centered at once upon the mechanical adjustment of the fragments, and his aim is their direct longitudinal apposition, without lateral deviation, after conscientious removal of any infection from without and equally careful exclusion of all foreign material—which here means also muscular or other tissue intervening between the separated bone-ends. The fracture having been "set" to his satisfaction, the expert surgeon proceeds to utilize the best appliances at his command for holding the fragments in place without undue pressure or laxity, so that the circulation may not be impeded by an overtight appliance, nor harmful excursion of the bone permitted by a loosely fitting one.

Among mechanical appliances used in the management of fractures of the long bones the Thomas splint is generally credited with being a most useful and practical splint for the thigh and leg. The half-ring modification or the Hodgen wire cradle extension suspension splint are accorded the preference in certain cases. In the experience of many war surgeons the Lane metal bone-plate was found to be excellently adapted to the reduction and immobilization of various types of fracture. The soft crucible and tool steel used in the manufacture of the Lane bone-plates and screws is advantageously replaced in Sherman's modification by stronger plates and screws constructed of elastic vanadium steel. Some valuable by-products of the unprecedented clinical experience of the World War, applicable also to the requirements of civil practice, are represented by Willems' screw extension for fractures of the thigh and leg bones; Blake's extension apparatus for the treatment of complicated femoral fractures; Sinclair's stirrup and splints; the practical ice-tongs calipers devised by Besley and modified by Pearson; the narrow, flexible cast-iron bands of Sir Robert Jones; Magnuson's absorbable ivory plates and screws; the animal bone-plates and screws recommended by Brougham and Ecke; Brenizer's intramedullary and extracortical beef bone splints for the repair of fractures of the long bones; Henderson's beef bone screws for fractures and bone transplantation. The admirable output of human ingenuity and professional skill embodied in these and other modern methods of fracture treatment has undoubtedly resulted in the saving of many limbs without discrediting some of the older tried and tested appliances, such as Lambotte's extensible steel fixateur or skewer and Reelus' walking stirrup for the treatment of delayed consolidation of leg fractures. During the reconstruction work at U. S. General Hospital No. 29, Fort Snelling, Minnesota, some new improved splints and appliances have very recently been developed, including an attachment for the Thomas leg splint which may be used with either a full-length or shortened splint, and on each side. The method of fastening the attachment to the Thomas splint permits of adjustment to fit the length of any thigh. The advantages of this method are that by its use fractures of the femur can be treated with the knee flexed and active or passive motion at the knee may be employed.

In the treatment of fractures which refuse to unite bone-grafting is often successfully resorted to, especially in the form of Albee's inlay cortical graft. Intramedullary pegs have given satisfaction in fractures of the radius or ulna, whereas long, stout inlay grafts give the best results in the case of the humerus and femur. The fact that in old ununited fractures the bone near the site of fracture is sclerosed and avascular, interfering with the establishment of a sufficient blood supply, is unfavorable to the outcome of a grafting operation and at the same time renders the employment of very prolonged fixation inadvisable.

All these modern methods of fracture treatment, the outgrowth of incomparable experience in handling large series of cases in military practice, are important, and some have a wide sphere of usefulness, but it must be kept in mind that the union of fractures also depends upon a number of factors entirely outside the adjustment of the loose bone-ends and their maintenance in place. Without exception, the fixation methods, including

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those which permit a certain amount of motion between the fragments and thus provide for better nutrition, unfortunately expose to the danger of delayed union, sometimes with bending and buckling of bone and extensive callus formation. There is no method of fixation at our disposal which directly favors or hastens bone union and repair of fractures. This is a very important truth, especially in view of the advanced status of orthopedic technique which is hardly capable of further improvement, for we are thus obliged to look for improved results of fracture treatment in an entirely new direction. As admirably stated by Sir Anthony Bowlby, all young surgeons must be trained to realize that the so-called "setting" of the fracture should be really only the beginning and not the end of surgical treatment.

There are some factors which undoubtedly militate against a favorable course of bone repair, but which from a strictly therapeutic viewpoint have been almost disregarded in this connection. When called upon to initiate or supervise a process of repair in a fractured bone, the surgeon should keep in mind certain conditions under which bony growth is more or less interfered with. In the first place, *endogenous infectious processes* in the bone-marrow may lead to local congestion and disintegration. In the explanation of rickets some investigators have assumed the action of known and unknown infectious substances which are carried especially to the points of physiological hyperemia of growing bones at the ossification centers. Epidemics of rachitis and osteomalacia, caused by a diplostreptococcus, were observed by Morpurgo (1907) in rats, and inoculation of this coccus reproduced the same bone symptoms in other animals. It has also been shown that after infectious diseases, such as measles, scarlet fever, and diphtheria, bacteria are deposited by the bloodstream in the vicinity of the epiphysis, where they may give rise to changes corresponding both macroscopically and microscopically to those seen in rickets. It is a rational conclusion that injurious factors of this kind which exert a weakening influence upon unbroken bones will retard or prevent the repair and consolidation of fractures. Curvature of the femur is known to occur occasionally in connection with suppurative processes of the knee joint, and is presumably due in part to bone-infection by a contaminated blood supply, besides the weight brought to bear upon the femur when the patient attempts to walk, to which it is commonly attributed.

The fact must not be overlooked that lesions of infectious origin, from both without and within, are of frequent occurrence in bone. External infections may extend inward through the cortex of the bone, an internal infection traveling by the opposite route. The tendency of bone-infection is to extend widely beneath the periosteum, or through the marrow spaces, causing more or less extensive necrosis of the bone. Aside from the *Staphylococcus aureus*, which is the most common pathogenic agent in bone-infection of endogenous origin, other germs may be responsible, such as the *Streptococcus pyogenes*, the pneumococcus, the gonococcus, or the typhoid bacillus. In certain cases of acute inflammatory atrophy of bone following upon secondary infection of adjacent joints the presence of the gonococcus has been demonstrated. It might be worth while to investigate the relative frequency of gonorrhea in fracture cases where healing is delayed. "La goutte militaire" must be regarded at least as a suspect in those cases in which no other explanation of the deficient callus formation and bone repair is forthcoming. In view of the long persistence of the typhoid bacillus in the body, as shown by the frequency of healthy "carriers" who have recovered from the disease but still harbor the parasite, it is perhaps not an exaggerated precaution to ascertain the existence of a positive or negative typhoid history in all cases of delayed union, if not in all fractures of the long bones.

As regards *focal infection* and its rôle as a factor in the repair of bone, it is suggestive that according to recent investigations of Pemberton (1920), on the nature of arthritis and rheumatoid conditions, the army furnished 400 cases of chronic arthritis, 298 of which showed demonstrable surgical foci, mostly in the tonsils (208), the remainder in the teeth or in the genito-urinary tract. Removal of the infectious focus and correction of the altered metabolism by regulation of the diet were found to have a beneficial effect on these disturbances.

Constitutional diseases, such as tuberculosis and syphilis, are undoubtedly responsible for delayed union in a certain number of cases. It is noteworthy in this connection that syphilis, according to recent investigations, appears to have such a pronounced structural effect upon the metabolism of bone tissue as to leave more convincing proof of an old luetic infection on the *x*-ray plate than is afforded by the Wassermann or Noguchi tests.

Other latent infections or uncorrected irregularities which have not yet been challenged as factors capable of affecting the growth and solidification of the callus are evidently responsible in a number of obscure cases of ununited fracture. A very instructive case which illustrates the leading part played by remote conditions in certain cases of delayed union, came under my personal observation in the United States Naval Hospital, New York, N. Y. Amputation to the thigh had been performed on one side, and the other femur presented a fracture, the fragments overriding four inches, a condition which had persisted until the tendons were shortened and the bone-ends could be placed in a position only by forcible extension. Two Lane plates were adjusted and held the femur in mechanical apposition, performing a useful function by lengthening the contracted muscles, but at the end of some months no callus had formed, while the flesh wound had healed and the general condition was fair. There evidently was a flaw in the metal of one of the bone plates, for it broke—an accident otherwise difficult of explanation—under careful employment of physiotherapeutic measures or perhaps lifting the patient cautiously from chair to bed. It was hoped for a time that the resulting irritation through the broken plate, with the associated mobility of the thigh, would

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stimulate the production of callus, but the fracture refused to unite. After the plate had been removed, it was possible to insert a bone-graft from the tibia and to hold the fragments in place without undue pressure by retaining apparatus. Still, practically no callus developed, although the soft parts healed readily, and the fragments were in perfect apposition. About this time the aggravation of certain symptoms which had existed for several months began to divert our attention which had naturally centered in the intractable fracture, to the patient's general and particularly abdominal condition. Periodical attacks of vomiting, after nearly every meal, had been noted for nearly three months, and the clinical evidence in the form of general abdominal discomfort, obstinate constipation, and typical attacks of pseudocholecystitis strongly pointed to intestinal stasis. Abdominal section was performed, showing well-marked bands and adhesions, which were corrected, to the great relief of the patient, who after the abdomen had been put in proper shape vomited only three times as a direct result of the anesthetic, after which all vomiting was definitely at an end. But the most interesting result of the abdominal intervention, from the viewpoint of the present consideration, is the postoperative production of a strong progressively solidifying callus in the fractured femur. The lesson taught by this experience is so convincing that all comments would seem to be superfluous, and I will only repeat that the healing of a broken bone imposes a tax upon the resources of the general organism for which the body must be fitted by removing or correcting irregularities of all kinds which may and do interfere with the normal course of bone-repair.

The gastrointestinal tract, with its many side pouches, recesses, cul-de-sacs, and extensions, such as the gallbladder and appendix, for example, naturally represents an important centre of dangerous foci of infection. The existence of local disease will inevitably delay the repair of fractures, not only on account of the ever present risk of metastatic localization of microbes or toxins at a point of lowered resistance, such as is offered by a fracture, but because of the associated lowering of the immunity balance due to the existence of infection and the more or less successful establishment of tolerance on the part of the organism. Being already taxed and perhaps exhausted by the fight against one enemy, the defensive mechanisms are sometimes unable to achieve a victory at the other front.

It is gradually being realized that in disablements of the human machine from any cause the patient must be treated as a whole, instead of being considered for the time being as an inevitable but superfluous appendage to his goitre, malignant tumor or other diseased condition. This truth has long been appreciated by advanced clinicians, who would not dream of treating goiter, gallbladder, or gastric disease, for example, without giving the closest attention to the manner in which other presumably intact organs discharge their obligations. Among operating surgeons, however, there is perhaps still a tendency to concentrate all efforts on the part that is in immediate need of repair, and a corresponding inclination to wonder that an apparently highly successful operation sometimes fails to accomplish the confidently anticipated result. A broken skull or thigh often absorbs all the attention of the surgeon, who lavishes his best skill and technical ingenuity on the repair of the existing lesion. But the ideal treatment of fractures must take in more than the broken bone and the resulting displacement.

So much excellent work was done in the direct treatment of fractures of the long bones in particular, in the unprecedented clinics provided by the World War, that there is practically nothing left for me to add to this important phase of the subject. On the other hand, the reasons for delayed or missed union and for remote imperfect results in spite of the most up-to-date operative procedures, still remain to be collected, compared, and explained, so that it may not be unprofitable to pass in review some of the obstacles to bone-repair and restoration of function, with suggestions as to their origin and possible control.

The greatest stumbling block in the way of tissue-repair is well known to consist of infection, and the lessons taught by the World War are still fresh in all our minds. The mere word suggests contamination of soil, purification of wounds, débridement, primary excision, and suture. But one of the points I wish to emphasize is that infection does not necessarily come from the outside. As a matter of fact, many injurious microorganisms lurk within the human system, where under ordinary conditions they may do no apparent harm, but as a result of autoinfection due to exacerbation of a latent or quiescent microbism are in all probability capable of retarding or preventing the recuperative and reparative processes of the body. Recent war experience has drawn attention to this possibility which occasionally was found to account for the peculiar and otherwise inexplicable behavior of apparently sterile wounds. The explanation is probably to be sought in the disturbance of the immunity balance—which every human body in the course of its existence has established for itself—by the abrupt onset of a more or less complete and persistent loss of local resistance at some point of the intricate human machinery. However, the condition still remains relatively unknown, although as regards their number and range, the disturbances produced by these internal foes are probably not inferior to diseases caused by microbes introduced from the external world.

Medical antisepsis must be constantly on the alert, not only against the enemies at the gate, namely, at the site of the fracture, but also against those which do their nefarious work hidden behind the bulwarks of the body. Some of their most important and dangerous strongholds are represented by the mouth cavity, the tonsils, and the nasal accessory sinuses. All these structures not only harbor highly pathogenic germs but furnish a favorable center for their distribution in the body at large. A certain degree of tolerance becomes gradually established through the constant presence of these agents, but the defense is apt to break down as soon as the inflic-

tion of an injury lowers the normal resistance of a given portion of the body.

With special reference to the relation between lowered resistance on the part of bones or joints and hematogenous infection, one of the earliest experiments along these lines (Schüller, 1880) showed that the introduction of tuberculous material by way of the lungs, followed on the same day by artificial contusion of the knee-joint or infliction of fractures, in rabbits and dogs was regularly followed within two to four weeks by a progressive inflammation of the traumatized joint, with externally demonstrable articular swelling, found to be of tuberculous origin at the autopsy some weeks or months later. The damaged bones were sometimes found to contain sharply outlined collections of tubercle bacilli. This experiment affords a good illustration of the rôle played by traumatism and lowered resistance in the localization of infectious material contained elsewhere in the body. Another suggestive case in the older literature (König, 1884) concerned a young man who had a kyphosis, with symptoms of incipient pulmonary tuberculosis, but was in fairly good condition when he sustained a fracture of the ankle. In spite of suitable treatment, the foot remained swollen and abscess-formation with fistula supervened. Unmistakable tuberculosis of the ankle joint developed and about six months later the patient died. At the autopsy a small tuberculous bone-focus was found at the site of the fracture, with advanced synovial tuberculosis in the joint. This case was undoubtedly one of metastatic tuberculosis lodging in a non-resistent fractured bone. Osteomyelitis experimentation points in the same direction. Kocher showed that after intravenous injection of the pathogenic cocci osteomyelitis developed only in those bone-areas which had previously been damaged by traumatism. Of recent years Murphy of Chicago and others have repeatedly emphasized the buccodental or tonsillar etiology of joint suppurations and related disturbances. The accessory nasal sinuses are responsible in a certain number of the cases. If under ordinary conditions of weak health a normal joint is unable to resist the invasion of buccopharyngeal microbes, but reacts in the form of pain and disablement, it is not surprising that in the presence of a local focus of infection the repair-process of a broken bone should be delayed or very imperfectly accomplished. Even in the absence of demonstrable disease of the teeth or tonsils, the knitting of the fractured bone may be prevented by the injurious influence of pathogenic germs in an apparently healthy buccopharyngeal cavity. Such microbes have long been known to reach the lungs, the ears, the cerebral meninges, and other structures where they may give rise to serious and sometimes fatal disturbances.

One of the reasons why harmful germs may lodge a long time in the mouth without causing trouble is to be sought in the physical integrity of the buccopharyngeal mucosa. But the normal standard of the mucous membranes of civilized man is easily disturbed by local traumatism, the devitalizing effects of cold, the inevitable neglect of the hygiene of the mouth in particular under the exigencies and privations of warfare. At the time of my visit to the hospital of the Indian Medical Service Corps in Boulogne, in 1915, I learned that the natives at home are in the habit of cleaning their excellent teeth with small sticks of a special wood. In the hospital no less than 60 per cent. of the men had pyorrhea alveolaris, undoubtedly due to neglected teeth, for tooth-brushes were not accepted—as being made of pig's bristles, in other words, unclean according to their religious teachings—and difficulty was naturally encountered in supplying the special sticks to which the Indian soldiers were accustomed. This apparently trifling observation is extremely suggestive, and, in fact, contains the key to some obscure problems of wound-repair in general and bone-repair in particular. Local susceptibility to microbic invasion must be supplemented by acceptance, or what Netter of Paris calls the consent, on the part of the body as a whole, in order to result in secondary infections and systemic disturbances. Here again, those conditions are admirably complied with by the lowering of the general resistance incident to the restrictions of hospital life. Fortunately, the degree of virulence of buccopharyngeal microbes is subject to fluctuations, the reasons for which are not yet entirely understood, and their capacity of interfering with the processes of tissue-repair varies in proportion.

When confronted with the task of restoring the integrity of a fractured bone, the surgeon therefore must learn to look at the patient as a whole and to put him in the best possible general condition. A man used to an active, out-of-doors existence, with constant contraction and relaxation of muscle and the active oxydation-processes belonging to the same, suddenly finds himself stretched out in bed, or at best confined to the ward, with more or less loss of physical and mental tonus; all the cells of his body share in the suspension of work, with the result that resistance is lowered and defenses are gradually sapped. Meanwhile, a polluted blood supply contaminates the seat of the fracture, and as the circulation is sluggish tarries in the surroundings of the broken bone-ends, undermining their reconstructive energies.

The callus for the repair of the fractured bone is expected in a measure to form from the hematoma. Fractures do not consist merely of a broken and more or less displaced bone, but as we know, all bony injuries are associated with a bloody extravasate, which in closed fractures may remain subperiosteal or pass into the surrounding tissue, or in open fractures escape to the outside. The loss of the extravasated blood has an undesirable influence upon the repair process in so far as its presence undoubtedly favors the formation of the callus. On the other hand, aside from the danger of infection from without or within, the hematoma may exert an injurious pressure upon the neighboring organs, causing congestion and lymphstasis, which are further increased by muscular inactivity. This retardation of the blood- and lymph-current involves a more or less imperfect nutrition of the surrounding tissues and at the same time exposes them to the danger of auto-

infection. The causative relation between the hematoma and the appearance of the callus is shown by certain cases of clean open fractures in which the blood has escaped to the outside, with the result that a very weak callus is formed. On the other hand, it is a familiar fact that a sluggish callus-formation can be hastened through the injection of blood at the site of the fracture or through artificial production of a hematoma by rubbing the bone ends against each other.

The young callus at first has the character of granulation-tissue, but later on gradually increases in solidity through deposit of lime salts. Its *mechanical* properties are of great importance from the therapeutic viewpoint. Newly developed callus is semi-elastic and yielding, so that it becomes readily deformed under the influence of relatively slight forces, resuming its original shape after these forces have ceased to act. But the semi-elastic callus is unable to overcome a marked deformity, which is apt to become permanent, the callus weakening and giving way under its influence. The frequent repetition of injurious factors, including irritation by endogenous pathogenic microbes and their toxins acting upon the young callus frequently results in a pseudo-arthrosis, which means that no bony but merely a fibrous union has occurred. Provided all mechanical rules have been observed, pseudo-arthrosis is probably referable to latent microbism in the majority of the cases. The solidity of the *exuberant* callus, which is sometimes formed as a result of latent infection, is due to its great bulk which counteracts its softness. When this mass later on undergoes a transformation into bone-substance, it acquires a much greater solidity than necessary. Before these superfluous bony masses can be reabsorbed through the osteoclasts they may exert an injurious action through pressure upon adjacent structures, impairment of articular movements, or formation of ankylosis. In other cases the abnormal callus interferes with adjacent organs, especially nerves, resulting in atrophic changes. Exuberant callus will also develop when the two bone-ends are more or less displaced or imperfectly adjusted. After consolidation has taken place in these cases the large callus serves to strengthen the bone, which always needs added support when its longitudinal axis is displaced.

The softness of the young callus requires fixation of the injured limb, at least to the degree that the slight restricted excursion does not exceed the elasticity of the callus. The *rest,* however, which *is* needed for the reunion of the broken bone retards the blood and lymph flow, while condemning the muscles to inactivity and exposing them to the danger of atrophy of disuse. As soon as possible during fixation, functional treatment (introduced by Lucas-Championnière) should be instituted in the form of exercises of the muscles, tendons, and joints, so that their recovery may proceed along with the repair of the fractured bone. A very common cause of badly healed fractures of the long bones consists in stiffening of the adjacent joints, usually associated with incomplete correction of the displacement of the broken bone-ends. It is not my intention to enter into a critical discussion of the various methods of treating fractures, but rather to emphasize also in this connection that the broken bone must not be considered exclusively, nor even receive the lion's share of professional attention. The muscles and joints must be given the benefit of early massage and judicious exercises, chiefly in the form of active movements in small excursions. A fracture is not to be considered as healed when the bone has anatomically united, but the muscles are damaged or the joints are stiff. The bad effects of immobilization in this respect led Dowden to the elaboration of the no-splint treatment of fractures. In cases of fracture of the humerus, for example, active movements of the fingers and wrist are encouraged from the first, together with pronation and supination, and the patient is instructed to flex and extend the elbow to a limited degree; three or four days later, passive movements are begun, aiming at complete extension of the elbow. It is certainly suggestive that in ten years he had no case of non-union or other untoward sequelae. Ideal results can be obtained only by attending at the same time to all requirements, from correct position of the fragments and creation of the best possible physiological conditions for the muscles and joints, to the patient's general health and the removal of all foci of latent infections. The existence of an infectious focus at any point of the body often constitutes a serious obstacle to the healing of all fractures.

The mobilization of quiescent microrganisms through changed circulatory conditions is very clearly brought out in a case of tetanus infection, observed in Germany during the war, as a sequel of artificial stimulation of the callus, for ununited gunshot fracture of the humerus, the injury dating back three and a half months. The flesh wound had healed and there was no other demonstrable lesion of the body. Four days after the loose fragments had been rubbed together the patient was attacked by tetanic spasms, suggesting that tetanus spores had penetrated into the arm with the artillery projectile and remained viable for a long time between the bone-ends, until their development was favored by the surgical traumatism. The most interesting feature of this case from our viewpoint is that this fracture had failed to consolidate, presumably as the result of the latent bone-infection.

The fact is not always appreciated that the complete repair of the broken bone does not necessarily coincide with a complete functional cure, but really does so only under the most favorable conditions, whereas months or even years may intervene in other cases. The less the soft parts have been damaged, the more they have been exercised during the repair of the bone, the more likely are they to recover together with the bone. On the other hand, when the soft parts, especially the muscles, tendons, and tendon-sheaths, have been badly damaged, perhaps with involvement of adjacent joints, a functional cure is naturally delayed and may remain incomplete for a long time. In the great majority of cases, under adequate treatment, no further improvement of function is to be expected at the end of two or three years. Certain sequelæ, more particularly chronic arthri-

tis, may persist a long time, especially in those cases where latent microbism has found a favorable soil for colonies in the traumatized and non-resistant tissues.

There is reason to believe, moreover, that aside from autoinfection with buccopharyngeal microbes, a deficient or faulty *action* of *internally secreting glands* may be in part responsible for delayed union or non-union in fractures of the long bones. The endocrine glands undoubtedly exert some influence upon the bone-system, under physiological as well as pathological conditions. The growth of bone is known to be injuriously affected by the diminished or exaggerated function of certain ductless glands, notably the thymus, the thyroid, the parathyroids, and the suprarenals. The relation of the internal secretion of the ovaries to the health and strength of bone is well known, but may be left out of consideration in a review of endocrinic factors governing bone-repair in military fractures; nor is there reason to dwell upon the action of testicular hormones in these cases.

The existence of close relations between the *thymus* gland and the ossification-process has been repeatedly emphasized in the international medical literature. By Frontali in Italy (1920) the thymus gland of a child thirty-three days old with congenital fragility of the bones and entire absence of the compact substances from the shaft bones, but with normal calcium balance and lime-contents of the blood, was found to be in a state of advanced sclerosis and atrophy. The other internally secreting glands were normal, so that he is inclined to attribute the deficient bone-development to the changes of the thymus and to recommend therapeutic injections with the serum of a child having a normal thymus gland, in cases where the function of this organ is deficient. Extirpation of the thymus in growing animals is usually followed by disturbances of ossification resembling rickets and leading to spontaneous fractures. The behavior of young dogs with artificial fractures of the long bones was found to differ greatly, after the performance of thymectomy, from the behavior of control animals of the same age and size whose thymus gland had not been extirpated. Whereas in the latter a strong callus rich in calcium made its appearance, the thymectomized animals developed only a very scanty and imperfect callus. Sometimes there was no demonstrable attempt at callus-formation at all, and a connective-tissue pseudoarthrosis developed instead. The effect of thymus-feeding upon artificially produced fractures in animals was recently (1918) investigated by Glaesner, with the object of ascertaining, in the interest of human surgery, if a more rapid repair of bone defects can be secured by the administration of thymus substance. Rabbits of the same litter served for these experiments in which a circular defect of the tibia was produced by means of a trephine; some of the operated animals were then regularly fed with thymus gland substance, others which received no thymus serving for controls; all were kept on exactly the same diet. The size of the bone-wound was ascertained once a week by *x*-ray pictures. After a certain time (four weeks) the animals were killed and the tibias of the treated and normal rabbits were examined and compared, with the result that very striking differences in favor of the former were noted. These findings undoubtedly suggest a beneficial influence of thymus administration upon the repair of bony lesions, and it seems not improbable that these experiments may acquire practical importance for the prevention of delayed union in fractures of human shaft bones.

The marked nutritional disturbance set up in the organism as a result of *thyroid insufficiency*, partly in the form of incomplete decomposition of the albumins, partly in the form of deficient oxydation of the fats, was discussed several years ago by Hertoghe of Antwerp, and he emphasized the fact that all tissues of the body are affected by nutrition or malnutrition, respectively. In the presence of thyroid insufficiency, no tissue remains unchanged, and the bones are no exception to the general rule. The administration of thyroid products is followed by extremely favorable results in cases of this description. The favorable effect of thyroid preparations upon the repair process after fractures is known to be due to the resulting acceleration of the deposit of lime-salts. A French observer, Gauthier, a number of years ago published observations on cases of delayed union and pseudarthrosis, cured by a fortnight's administration of altogether six to ten grammes of fresh sheep's thyroid, and these findings were confirmed by several other investigators. In 32 of 37 cases of delayed union, the fracture became promptly consolidated, in Gauthier's experience, evidently due to the stimulating effect of the thyroid extract upon the osteogenetic tissue. During the repair process, a large callus developed, which underwent retrogressive changes when the thyroid medication was stopped. Fractures of the long bones are said to have healed within three weeks (seventeen or eighteen days). Gauthier accordingly recommended the routine administration of thyroid extract, from the start, in the treatment of fractures. Animal experimentation has shown that removal of the thyroid gland, after a fracture has been inflicted, leads to delayed consolidation of the bone in practically all cases without exception.

The *parathyroids* in their turn are also known to exert a regulating influence upon the calcium metabolism. By some observers, the tetany which follows upon the extirpation of these small bodies has been referred to a deficiency in calcium in the organism as a whole. Leaving aside the tenability of this theory, the fact that interests us here is the potential part played by functional disturbances of the parathyroids, as a result of undernutrition or other causes, in the complicated process of bone repair.

The action exerted by the *suprarenals* on bone repair probably constitutes a highly intricate process. Stress and strain, physical as well as mental, which after all are the conditions under which most fractures are inflicted, through their effect upon the nervous mechanism of these glands presumably diminish the output of sugar into the blood and thereby reduce its bactericidal powers. The impairment of the glycogenic function and the chemical alteration of the blood inviting intravascular and intracellular infection, the invading bacteria are no

longer prevented from penetrating into the depth of the traumatized tissues, and the metabolic dyscrasia ultimately results in delayed bone repair.

The direct beneficial influence of *adrenalin* upon bone repair and callus formation was pointed out several years ago by Carnot and Slavu, who in their animal experiments observed a better bony consolidation in dogs which were given a daily subcutaneous injection of 6 milligrammes of adrenalin, as compared to control animals of the same age and weight whose tibial fractures were allowed to heal without adjuvant adrenalin medication. Even to the unaided eye, the favorable influence of adrenalin upon the process of bone repair was clearly apparent, and these findings were confirmed by microscopical examination. There seems to be a reaction on the part of the bone marrow on the one hand, while on the other there is an increased deposit of lime salts under the influence of the drug.

The *cerebral hypophysis* or pituitary gland is known to affect the osseous system, a disordered function of this organ leading to the changes of giantism, dwarfism, and acromegaly. Opinions are still at variance, however, as to the manner in which this influence is exerted. Experimental injection of pituitary extracts in particular has yielded variable results in the experience of different investigators, in the form of delayed or hastened bony growth, increased or diminished excretion of calcium. Just before the outbreak of the World War, in 1914, Marsiglia in Italy published investigations concerning the effect of the active constituents of this organ upon the healing of fractures and the formation of the callus. The outcome of his experimental intramuscular injections of a preparation of fresh whole calves' hypophysis into dogs, whose femurs had been fractured on the day of the injection, was not only negative as regards the acceleration of the repair process by pituitary medication, but he was actually enabled to ascertain a delayed callus formation as compared to the control animals.

In this connection, mention may be made of *gelatine*, a product derived from bony, cartilaginous, and connective tissues, which was originally and very successfully employed to promote the consolidation of fractures, by Anzilotti of Pisa. A sterilized solution of gelatine (2.5 per cent.) is used together with sodium chloride (0.75 per cent.), phenol (0.50 per cent.) and calcium chloride (0.50 to 1 gramme per cent.). A dose of ten c.c. of this solution is injected daily or every other day into the muscles or under the skin. The results, in the form of improved healing of fractures, are claimed to have been uniformly excellent, without untoward sequelæ of any kind.

Upon the basis of these experiences, as briefly sketched in the foregoing remarks, the question naturally arises if the administration of carefully selected endocrinic extracts, known to exert a stimulating effect upon bone growth and ossification, might not be advantageously introduced as a routine feature into the treatment of fractures of the long bones. In all probability, the normal function and cooperation of several internally secreting glands is essential to the utilization of the calcium and phosphorus contained in the food, in the metabolism of the bones. At the present limited stage of our knowledge, the subject may be tentatively envisaged from two viewpoints, referring the disturbances in the repair process either to general malnutrition, with involvement of the endocrinic glands; or possibly to the absence of the indispensable vitamines, damaging the function of these ductless organs.

Vitamines are nitrogenous crystalline bodies of very complicated structure, existing in fresh animal and vegetable foods. Aside from general nutritional disturbances due to the absence of vitamines from the diet, peculiar systemic disturbances of the bony framework of the body have recently been described in Germany and in Austria, where they assumed an endemic character. Much attention has of late been devoted to diseases due to restriction of fresh animal and vegetable foods, with absence of vitamines from the diet, and these conditions are sometimes grouped together under the heading of "avitaminoses," comprising scurvy, beriberi, pellagra, infantile scurvy, rickets and osteomalacia. The vitamines, aside from their absence in unsuitable foods, may be destroyed by mechanical or chemical processes or through the action of excessive heat. In experiments upon young guinea pigs and other animals, not only scurvy-like conditions but actual changes of the bones have been produced through exclusive feeding with highly sterilized cows' milk. Dietetic errors in the form of a deficiency of calcium in the food are naturally capable of inducing an impoverishment of the bone in lime. Disturbances in the phosphorus metabolism also enter into consideration, for it has been shown experimentally that the bones may become decalcified through continued administration of food poor in phosphorus, leading to osteoporotic changes, proliferative processes in the periosteum and cartilages, thickening of the epiphysis, and curvatures of the bones.

Empirical proof of the favorable influence of fat-soluble vitamines on the growing and mature osseous system has long been furnished, through the beneficial effect of codliver oil on rachitic children, this substance being extremely rich in these vital supplementary food constituents. Comb honey also has been shown to contain a moderate amount of fat-soluble vitamine, but this is entirely lost in the commercial strained product. Denatured and so-called predigested foods, if not positively injurious, undoubtedly deprive the body of important building material and are probably in part responsible for incomplete reconstructive processes of various kinds. The harmful action of defective foods on the teeth, and their part in the production of caries, has often been discussed in the dental and orthodontic literature. Through an unsuitable diet consisting entirely of soft starchy foods, disturbances in the form of osteoporosis have been experimentally produced in the growing bones of young dogs; the absorption of the bone substance was increased and the formation of new bone was diminished, as compared to the controls.

The same factors which are concerned in the non-traumatic diseases of the bones and joints are likewise operative in bone repair after fractures. Blood chemistry no less than blood bacteriology enters into consideration in the complicated repair process of fractured bones, and the significance of chemical factors must not be lost sight of in this connection,

for the normal course of bone repair is often arrested by chemical change without bacterial invasion. All fractures are accompanied by a lowered local vitality, due in part to a changed blood supply and diminished nutrition. Absence of the normal bone salts is demonstrable in many cases, and this departure from the normal standard is visible to the experienced eye in *x*-ray plates of the affected bones. My own experience includes cases in which no callus had formed although the mechanotherapy could not be improved upon. Without any other modification of the treatment, these patients were given calcium salts for a variable length of time, according to requirements, with the result that callus formation and union were promptly obtained. One such case is at present under my care in the Naval Hospital and the healing of the fracture is making satisfactory progress.

The value of calcium triple phosphate as a stimulus to osteogenesis has been pointed out by Albee and Morrison, in whose experience the injection of 1 c.c. of a five per cent. solution into the bone defect of rats, on the third day after the infliction of a fracture, was followed as soon as five days later by the beginning of callus formation, shown by *x*-ray pictures, with union of the bone ends at the end of two weeks, whereas in the controls the defect was not yet bridged over after thirty days and only a slight callus formation was demonstrable.

Although ten years have passed since the bearing of focal infections on bones and joints was first pointed out, by Hunter in London, this subject is only gradually receiving the wider attention of the medical profession. Judging from reports in the literature, opinions are still about equally divided as regards the etiological rôle of mouth infections in bone and joint metastasis, for example. However, the existence of latent microbism and autoinfection is generally conceded, and the fact is freely admitted that disease is not exclusively due to agents introduced from without. What remains to be enforced is the application of this principle to the course of repair processes in the body in general and in fractures of the long bones in particular. The defensive mechanisms of the body must be constantly on the alert in the prevention of exogenic as well as endogenic infections. Sir Almroth Wright, in 1919, in his memorable Address before the Royal Society of Medicine, entitled, "Some New Prospects in the Field of Therapeutic Immunization," offered a new explanation applicable to the lodging of bacterial emboli in bones and joints. "A region of the body in which the guardian elements of the blood have been rendered impotent, or as the case may be, have been excluded," is designated by him as an ecphylactic region, and such a region may be induced by *any influence which interrupts* or closes down the *arterial supply* to the part. A fracture would seem to provide an ecphylactic region par excellence.

The modifications of the regional blood supply incident to a break in the continuity of a given bone naturally play an important part in the repair of the lesion. Injury of the nutrient artery of the broken bone is often an inevitable concomitant of all fractures. A number of delicate new blood vessels are formed in Nature's effort at compensation, for the maintenance of a sufficient blood supply. When the extension of the contracted parts is not very carefully timed and manipulated, the stretching of all the regional blood vessels results necessarily in diminution of their caliber and nutritional impairment of the area supplied by them. A highly injurious influence may thus be exerted upon the constructive metabolism of the bone. In order to obtain the best results in the treatment of fractures, practical application must be made of the war taught lesson that the *normal* circulation, nutrition, and mobility of the injured limb must be maintained as far as possible, thereby insuring the vitality of the parts and favoring the formation and solidification of the callus, while guarding against the wasting of muscles and the stiffening of joints.

The many concealed factors at work in the complex process of bone repair which are entitled to serious study in behalf of improved results of fracture treatment are only beginning to be understood and appreciated, so that a promising field is thrown open for further investigation along these lines. The factors influencing bone repair after fractures may be briefly summarized as follows:

I. Blood bacteriology:
   (*a*) Lowered resistance of fractured bone, favoring autoinfection and deposit of infectious agents from the blood (latent microbism).
   (*b*) Metastatic infection of fractured bone, from concealed foci in the tonsils, teeth, gastrointestinal or genitourinary tract.
   (*c*) Constitutional disease, such as syphilis affecting the structural metabolism of bone tissue.

II. Blood chemistry:
   (*a*) Action of internally secreting glands.
   (*b*) Metabolic dyscrasias.
   (*c*) Effect of vitamines, changes in phosphorus and calcium metabolism.

III. Interference with the constructive metabolism of bone through injury to the nutrient artery and changes in the caliber of the regional blood vessels.

Diseases are often called functional, merely because no organic basis for the existing disturbance can be demonstrated, but this apparent absence of course does not exclude the possibility of an organic lesion as the source of the symptoms. Modern experience teaches that toxic infectious processes are to be reckoned with in numerous obscure conditions, and delayed bony union after fractures, for which no satisfactory explanation can be found, undoubtedly is one of these conditions. It may be that the injured bone is affected by minute vascular changes, as the invisible anatomical expression of an endogenous infection or intoxication. The solving of these questions must be left to future investigations by laboratory methods and animal experiments. But the time has arrived for all surgeons to realize the fundamental therapeutic importance of the problem of a possible endogenic cause or metabolic dyscrasia for delayed union after fractures. Convinced as I am of the necessity for more accurate study along these lines, I have endeavored to point out these new vistas in fracture treatment, by inviting attention to some factors in bone repair.

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TREATMENT OF RAYNAUD'S DISEASE WITH THYROID EXTRACT.

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AUGUST MAURICE RAYNAUD was born July 5, 1834, in the city of Paris, and achieved distinction and position principally by his thesis for the medical degree, which was entitled "De l'Asphyxe Locale, et de la Gangrène Symmétrique des Extrémités." Raynaud received the degree of Doctor of Medicine and Doctor of Letters in 1862; became physician to the hospitals in 1865, agrégé in 1866, Officer of the Legion of Honor in 1871, and in 1879 was welcomed into that distinguished society, the Academy of Medicine. The address in medicine at the International Medical Congress, London, 1881, was to have been delivered by Raynaud, the subject being "Skepticism in Medicine"; but the privilege was denied him, for he died suddenly from an organic heart disease on June 29, 1881. However, his friend, M. Féréol, read the paper to the Congress after his death. It is indeed interesting to note that when he published his celebrated thesis he was less than thirty years of age. For the degree of Doctor of Literature, he wrote two theses; one in Latin, "De Asclepiade Bithyno, Medico ac Philosopho"; the other, "Les Médecins au Temps de Molière." He was a most careful and keen observer, for nothing has been added to our knowledge of the disease which he so admirably depicted. M. Peters states that he was to be regarded in the fourfold character of physician, savant, philosopher, and man of letters.

The oldest recorded case (1629) was noted by Bernhard. A student of surgery with two companions put up at an inn, where they found that the daughter of their host, a girl of twenty-three, suffered every month from considerable pain in her fingers and toes, on her ears, and in the tip of her nose. There was also edematous swelling of the hands, feet, and face, followed by mortification of the parts, so that the ends of these having become white and dry, dropped off in little pieces, without feeling, pain, moisture, or bad odor.

Definition.—Raynaud's disease is a disease affecting principally the fingers and toes, though other parts of the body may be attacked, characterized by partial loss of sensation, passive congestion, which may finally lead to necrosis. There is no apparent disease of the vessel walls.

Etiology.—The cause of the disease is as yet uncovered and practically no progress has been made in finding the causal factor since Raynaud's celebrated thesis. The most plausible theory yet advanced is that the vasomotor center in the spinal cord is affected and the sympathetic nervous system is involved.

The disease is quite rare, and Osler records the fact that among 23,000 patients admitted to the Johns Hopkins Hospital in a period of twenty years, there were only nineteen cases. Monro estimates about one in 3,000 cases, but this figure, like that of Osler's, may be very low, for many suffer with the disease, and on being told that little can be done for it, suffer without any statistical record being made.

Women are said to suffer more frequently than men in the ratio of 62.6 to 37.4, though the cases admitted to the Glasgow Royal Infirmary in a decade were equally divided.

Any age may be attacked. The earliest recorded case was in a new born infant, the symptoms appearing six hours after birth and gradually progressing until the death of the child eight days later. The oldest case was in a woman seventy-seven years old.

A history of an hereditary influence is present in eight per cent. of cases, but the occurrence of the affection in single families is not noted.

Almost every walk of life is represented in the list, but those subject to exposure are more susceptible. A long and tiresome exposure seems to have brought on several of the cases.

Most cases become worse in winter, and there is no question but that cold will induce or bring on an attack. Sexual disturbances are no doubt involved in the causation of this unusual disease. Raynaud records 111 cases in females of all ages; of these ninety-three were above fourteen and twenty-six had some disturbance in menstruation.

Pathology.—The pathology of the disease is anything but definite, though the search to find the seat of the affection has been most diligent. Microscopic changes in the spinal cord have been reported in a few cases but their occurrence has not been frequent. Sclerosis of the vessel walls has been reported, but of course these are not true types, for the definition excludes such cases. Adami and McCrae believe that the spasticity of the arteries is due to the action of cold on the vessel wall, as well as reflex action. They call attention to the fact that emotion which in one individual will stimulate the vasodilators, in another will stimulate the vasoconstrictors and produce pallor. The most likely pathology is a change in the vasomotor center in the spinal cord which may be stimulated by emotional causes, poisons in the blood, or reflexly by agents acting on the periphery. The features of the gross pathology are ischemia, hyperemia, and necrosis. The fingers at first become white due to vasoconstrictor action on the terminal arteries and veins. In the hyperemic stage the color of the fingers varies from a pinkish red to a blue red and may finally become dark blue. Stagnant blood and serum are diffused into the tissues. Necrosis follows if dilatation persists, due to asphyxia of the tissue and pressure. The necrosis is superficial rather than deep.

Symptoms.—Raynaud's original description needs no improvement. The following excerpt from the original monograph is interesting. "I propose to show that there exists a variety of dry gangrene affecting the extremities which is impossible to explain on the basis of vascular obliteration, a variety characterized especially by a remarkable tendency to symmetry, since it always affects similar portions of the body, the two upper extremities, the two lower extremities, or all four at the same time. In certain instances the nose and ear are also affected. I shall seek to prove that this kind of gangrene has as its cause a disturbance of the innervation of the capillary blood vessels."

The symptoms are divided into three classical stages: (1) Local syncope, (2) Local asphyxia, (3) Symmetrical gangrene.

In the stage of local syncope one or more of the fingers or toes feel dead, and this may be accompanied by pain and cramp. The sensations are blunted and the patient often cannot tell a coin by its feel or be certain when he is counting paper money whether he has one or two dollars between his fingers. This condition may last from a few hours to a few days and then return to normal.

The characteristic features of the stage of local asphyxia are: the attacks are paroxysmal, they are recurrent and involve symmetrical parts. The fingers are dusky in appearance and all the fingers are not usually involved to the same degree. The coloring of the skin varies from a light reddish purple in mild cases to a dark bluish black in the more severely affected. Severe pain is usually present and the attack may last from a few weeks to a month and then disappear.

The stage of symmetrical gangrene is not present in all cases. Then again, it may involve only very small areas or may extend over the entire hands and feet. The fingers and toes are greatly swollen, the pain is excruciating and small areas of the skin may slough off. The hands or feet appear quite necrotic, though the process looks worse than is actually the case, for when the process abates the parts may return to quite a normal condition. The bed of the nail is often involved and becomes quite brittle.

Diagnosis.—In 1837 M. Victor François of Mons, in his "Essai sur la Gangrène Spontanée," stated that "everything concerning spontaneous gangrene, is in a state of distressing uncertainty," and to be sure his statement is still applicable. The disease must be differentiated from the following conditions:

Chilblains. The differentiation is most difficult because the two processes so closely resemble each other, but Raynaud's persists while chilblains abate and recover. Also, chilblains are not symmetrical.

Senile Gangrene. Usually only a single limb is involved. The pulsation of the artery supplying the limb is partially or totally obliterated. The artery feels hard. The deeper structures of the limb are involved. The process occurs in the aged or those affected with arteriosclerosis. The lower limbs are more frequently affected.

Phlebitis. The condition follows a long stay in bed or an acute fever. The lesion is very painful. Improvement follows rest and elevation of the part.

Diabetic Gangrene. Diagnosed by the history and the presence of sugar in the urine.

Ergotism. History of eating infected rye, or the patient has overdosed herself with ergot to induce abortion.

Congenital Cyanosis. Diagnosis facilitated by history. Other members of the family usually affected; the cyanosis increases under effort; there is shortness of breath and the physical signs of a heart lesion are present.

Arteritis Obliterans. The feet are involved much more frequently than the hands; the condition is nonparoxysmal; it is progressive in character and does not involve the parts as symmetrically as Raynaud's.

Hysterical Gangrene. The upper limbs and trunk are usually affected while the fingers are usually free from any necrosis. There is evidence of the use of phenol or some other escharotic chemical by the patient. Females desiring sympathy are usually affected.

Embolism. The symptoms come on suddenly and rarely are the extremities symmetrically involved. Usually evidence is present of valvular heart disease.

Peripheral Neuritis. The pain is along the course of a single nerve or affects the area supplied by that nerve.

Treatment.—To care for a patient suffering from Raynaud's disease means an expenditure of time, effort, patience, and indulgence. It is best to explain to the patient that results are slow and one should not become weary if, after the first month of treatment, only slight improvement is seen. The prophylactic treatment consists in avoiding undue exposure to cold.

Local Treatment. Prevent loss of heat from the part by wrapping in cotton or wool. Relieve pain with salicylates internally or preferably small doses of opium. Local circulation may be stimulated by applying the band of the blood pressure apparatus above the affected part and producing constriction for five minutes. On releasing the pressure, there is often a great deal of improvement. Another effective means of stimulating local circulation is to place the limb in a basin of tap water and attach the negative pole of the galvanic current thereto. The positive pole is applied to the spine. If there is considerable abrasion, warm fomentations of tincture of opium, glycerin, and belladonna are applied. Where there is considerable destruction of tissue, surgical methods may be employed; but one should never be in haste, for remarkable improvement has followed in cases where it seemed the parts were certain to die. Amputation should be resorted to only in the most unusual cases.

Many general measures have been employed, but only a few have yielded any results. Regulating the diet seems to have no effect on the course. Short, in 1897, recorded great improvement with the use of thyroid extract. Harrower obtained similar results in several cases by employing thyroid therapy, and I have successfully treated a case by the same means. Raynaud advocated the use of galvanism, on the basis that the disease was due to an involvement of the sympathetic. Evidence certainly seems to point in this direction. He placed the positive pole over the spinous process of the seventh cervical vertabra and the negative over the lumbar spines. In some cases he obtained good results; in others he failed. The rule for therapeutic measures in Raynaud's disease is that a measure which is highly successful in one case will not respond in another. The results that Raynaud obtained from galvanism were satisfactory and constant. The cry went up, then as well as now, by those unfamiliar with this method of treatment that the success was due to a psychic suggestion. The manner in which he answers his critics is indeed interesting. "Such is the second case of cure obtained by means of the continuous current. In connection with the first it appears to me of a nature to call for the most serious attention of the practitioners of this therapeutic measure. It would be absurd to suggest that the improvement obtained was a mere coincidence.

In both cases the malady was of several months' standing at the time when treatment was commenced and seemed to have no tendency to disappear spontaneously. In both cases also the electrical treatment was not complicated by the employment of any other means; it was followed by an immediate improvement. Hence there is no question here of one of those approximate coincidences which so often leaves the mind in doubt when one wishes to estimate impartially the value of a therapeutic agent. The first application was followed immediately by a notable alleviation. This alleviation was greater after the second than after the first, greater after the third than after the second, and so on to complete cure. Chance is very powerful, but one will acknowledge that it hardly proceeds with this regularity." The positive pole was applied over the seventh cervical vertebra and the negative over the lumbar spine; or the spinal area may be treated from the cervical fifth to the cauda equina. Another method is to apply the positive pole to the axilla over the brachial plexus and the negative over the fingers. The time of treatment is ten to fifteen minutes.

The alimentary tract should be cleared of any possible noxious substances. A good nerve tonic should be prescribed so as to prevent overaction of the vasometer center in the cord. Coffee and tobacco should be restricted or eliminated. If anemia exists iron should be prescribed. Amyl nitrite is of little value except when associated with angina pectoris.

CASE HISTORY.—Mr. X. is an apparently husky man of the short and stocky type, weighing 150 lbs. He is forty-one years old, though he looks much younger. His family history is most interesting. The facts concerning the marriage of his mother are quite mysterious. When she was seventeen years old, the woman whom she supposed to be her mother, died. Shortly afterward her father suggested that she marry him, which she refused, knowing that a daughter could not marry her father. The father then told her that she was not his real daughter, but only an illegitimate child. This explanation was accepted and though she was married by a minister she can show no marriage certificate, neither can she explain the reason therefor. The patient has two brothers and they are usually suffering from some minor ailment.

The personal history of the patient, though interesting, throws no great amount of light on the possible cause. Mentally he shows no marks of brilliancy and in his conversation is very brief and talks but little. He cares little for the company of others and is rather secretive. His present occupation is that of a secretary, which necessitates much stenography. He makes little advancement due to lack of initiative. He has been married four years, but has lived with his wife for only two years because of incompatibility. He led his wife into marriage on the strength of promises he has not been able to keep.

Physically the patient has no more initiative than he has mentally. He lacks "pep" and likes to remain at home most of the time. The heart is slightly enlarged with a soft systolic murmur at the apex, but this is fully compensated for. Urine examination shows some granular casts. Blood pressure is 115 mm. Hg. systolic, and 90 mm. Hg. diastolic. Wassermann negative. Several pus pockets located in molar teeth. Blood negative. Reflexes normal. The fingers of both hands are enlarged, swollen, sensitive to touch, and of a rusty red coloration. All these symptoms have been gradually increasing during the past week. The first symptom that the patient noticed was two weeks ago, when his fingers became quite sensitive after using the typewriter for a short time. The tenderness increased and then the discoloration appeared, at first underneath the finger nails and later spreading to the rest of the fingers. The large toe of each foot is swollen, tender, and discolored and there is a small excavation about four mm. in diameter on the large toe near the nail, from which there is oozing a clear serous substance. The slightest touch of anything to this area is perceived as excruciating pain. The patient sleeps in a chair because he cannot bear to have anything touch his foot. He has slept but little for the past three nights. Salicylates have no effect. Powdered opium afforded relief. There is also a small necrotic area on the lobe of the right ear, which has destroyed the ear substance through its thickness over an area the size of a split pea. This site is sensitive, but can be touched. Two years ago the patient noticed his feet became suddenly red, but thought it was due to poison in the dye of his socks.

The first effort was to relieve the pain and to close up the oozing surfaces. The toe was placed in a solution of water through which was allowed to flow a positive galvanic current. After five minutes of this the pain was relieved and then ten per cent. silver nitrate was applied. The hands were immersed in a positive galvanic solution. Though the pain was relieved by this procedure, the swelling did not subside. In the meantime the patient had consulted two other physicians and was told that the prognosis was very poor.

My ingenuity was now on trial. After studying the patient thoroughly the idea struck me that he was of the hypothyroid type. His dry skin, stunted mentality, stunted growth, and thin, dry sparse hair were the indicators. I gave him capsules of ¼ grain each of thyroid gland, ferrous iodide, and nucleinic acid with calcium. The first day three capsules were ordered and increased one a day until there was an acceleration in the pulse rate. This occurred when the patient was taking six capsules a day. The infected teeth were removed and the dental caries was found to be quite extreme. The patient was kept on six capsules a day for a week and then reduced to five capsules a day for a week. The next week he took four capsules a day, and finally three a day. After the first week the patient could sleep without a narcotic and the fingers were less tender. The swelling began to recede and the excavation in the ear commenced to fill up with normal tissue. The improvement was so marked that the patient was sent to the country for a month's vacation. While away he took three capsules a day for a week and quit. I saw the patient the day after his return from the country and both of us were pleased with the result. The fingers had returned to their normal size and there was only the faintest trace of any red coloration. One month later the patient's fingers began to be sensitive and tender, and in order to guard against any recurrence the thyroid capsules were ordered, one three times a day, and within a week this condition disappeared. The man has been in good spirits and health since that time, which was three months ago.

The thyroid therapy did more in this case than relieve a troublesome condition. The patient has more "get-up" about himself and feels happier and brighter than he did before he commenced treatment. His wife states that he is much more alert and active and not so introspective. The writer is not possessed with the idea that organotherapy will cure all the ills of mankind. Thyroid therapy was chosen because the patient was regarded as an entity. One look at the patient and you would be struck with the idea that he was of the sleepy type, half awake, half asleep. Raynaud's disease cannot be due to a local condition because of the widely distributed areas that are affected in parts of the body that have no apparent connection. Apparently it must be a substance that circulates in the blood that can affect the ear and the finger at the same time. The most likely conclusion is that the toxin affects the sympathetic nerve fibers because the sympathetic controls vasodilatation and vasoconstriction. First the toxin stimulates the constrictor fibers, later the dilator fibers which accounts for

the passive congestion. The sympathetic and the endocrine glands are intimately related, and this fact, together with the clinical picture of hypothyroidism that the patient presented, led me to choose thyroid therapy as the remedial agent.

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THE REDEMPTION OF INTERNAL MEDICINE WITH REFERENCE TO IMPROVED THERAPEUTIC APPLICATION.

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THERAPEUTIC nihilists were created through the failure to obtain remedial action of alleged therapeutic substances when applied orally or through the gastrointestinal (alimentary) tract for pathological conditions remote from or beyond this area. The reason for this failure is obvious when one considers the complexity of the enzymotic and chemical digestive processes on remedial substances so administered.

Corrective treatment of pathological conditions of the alimentary system should be confined to the oral exhibition of such therapeutic agents as will have a remedial action on this system, and possibly in conditions where the dividing line between the alimentary system and the less remote areas is not clearly defined and also in certain intermingling pathological conditions.

This subject will be discussed upon a basis of what now appears to be logical and scientific facts as regards metabolic processes and the known chemistry of the blood and tissues, in an effort to discourage further therapeutic nihilism by certain non-medical and surgical groups, who are not interested in internal medicine and who believe that the panacea of all ills lies in their trust in Providence or surgery.

For the treatment of pathological conditions remote from the alimentary tract and not intimately associated or intermingled with it, two methods of more direct scientific application of remedial substances are available. The first is the subcutaneous and intramuscular application of remedial substances.

The subcutaneous and intramuscular application of therapeutic substances for diseases remote from the alimentary tract is much more direct than the oral application; much quicker in action, and with a greater assurance that more of the active principle of the preparation so administered is utilized.

On the other hand, many substances when injected beneath the skin or into the body of a muscle cause pain which, in itself, limits the freedom of using this method of application; and also, while they are more rapid in absorption and distribution than when given by the mouth, yet if such substances be in a state of incompatibility, chemically, with the tissues so injected they are liable to cause induration and possibly necrotic areas or to be permanently encapsulated; especially is this true if such substances are in a high degree of concentration.

Another objection, however, is the reversed osmotic process on which these substances must depend for their entrance into the blood stream and final distribution to remote areas. To obviate these objections, the third or more scientific method of direct application is the placing of remedial agents directly into the circulation (intravenously).

Before discussing the advantages or disadvantages of this latter method of therapeutic administration, let it be understood that there is little doubt that the members of the medical profession at large are in accord with the opinion of the Council on Pharmacy and Chemistry of the American Medical Association, in the propaganda against the indiscriminate use of the vein for the administration of therapeutic substances. This, of course, cannot apply to carefully selected remedial agents which have been converted into a state of chemical harmony with the blood.

The blood is a highly organized complex chemical fluid which is capable of converting many remedial substances to its own metabolic use and rendering others innocuous for its own protection. By the intravenous application of substances, when rendered chemically compatible with the blood, it is immediately converted into a state in which it may take its place in the general scheme of metabolism, and when it finally enters the various tissues it is by a direct osmotic action; in other words, the blood is carrying constructive anabolic material as well as remedial substances, and these are delivered by direct osmotic action to all the cellular tissues of the body.

For pathological conditions remote from the alimentary tract the direct application of remedial substances seems, according to this view, to be more effective and less objectionable than other modes of application. This is particularly true in pathological conditions intimately associated with, and readily accessible through, the blood stream; furthermore, through osmostic processes these remedial substances are carried into the more inaccessible areas, as, for example, the cerebrospinal tract. This process is admirably demonstrated by Osborne[1] in the quantitative estimation of iodine in the cerebrospinal fluid before and after oral, rectal, and intravenous administration of sodium iodide; demonstrating that the amount of sodium iodide found in the cerebrospinal fluid after administration by mouth or rectum is small compared with that following intravenous administration.

Accepting these statements as true, the chief requisite to accomplish the safe application of remedial substances through the circulatory system is an intelligent understanding of the chemistry and the proper chemical adaptation of these substances to the blood, and in order to avoid the use of prepa-

rations of questionable compatibility with the blood it is necessary to follow those who are fitted by experience to test the chemical, physiological, and therapeutic action of such substances *in vivo*.

Of the two methods of application for pathological conditions remote from the alimentary tract it is obvious that the venous is the more scientific and effective. Undoubtedly many medicaments must be classed as unsuited for intravenous use on account of their insolubility or chemical incompatibility. This chemical antipathy is shown in reactions expressed by different grades of vertigo, vasomotor stimulation or depression such as flushing or pallor of the face with evidences of shock of varying degrees up to and including the true anaphylactic state.

For example, the injection of the acid salts of quinine, such as dihydrochloride, frequently causes pallor and dizziness. This is not generally true of the neutral salts such as the cacodylate. The danger of reaction and anaphylaxis through the intravenous application of these agents is, however, no greater generally than when they are administered orally. Then, too, the chemistry of the blood in certain individuals differs from the normal, the blood in such individuals being chemically intolerant to substances generally accepted as compatibles with the blood of the masses.

It is of interest to note the celerity with which favorable results are obtained by the intravenous application of the iodine preparations in pulmonary[3] disturbances. In these cases the intravenous administration constitutes the most direct application to the lungs possible,[2] the course being through the veins to the right heart, thence by way of the pulmonary arteries to the lungs.

Diseases of the kidneys, which are now considered generally as of an infectious origin,[4] as well as those of the entire urinary tract with their intimate association with the blood stream, are quite accessible to the intravenous application of remedial agents.

Pyelitis has been in the past a difficult condition to control successfully by means of the oral administration of remedies, but there is sufficient evidence at hand to warrant the intravenous application in these conditions with the assurance of immediate results.

Recently a number of cases of this type have been treated in this manner. Three cases, immediately in mind, occurred in two women and one female child nine years of age.

In the first case the patient was passing 50 per cent. centrifugal pus from the left kidney pelvis accompanied by pain and temperature ranging from 101° to 103°. The preparations were applied intravenously; the base of one was hexamethylenamine, alternating with a compound of sodium hypoiodite, sodium orthocreosote, and sodium guaiacolate. In this case the temperature was normal preceding the third application, with pain relieved and pus 3 per cent. centrifugal; complete recovery, however, was rather prolonged.

The second was a mild case of chronic arthritis complicated by pyelitis and a mild nephritis showing about 10 per cent. serum albumin and an additional 1 per cent. of nucleoalbumin. In addition to these complications there was present a mild type of cholecystitis with a mild icterus and considerable edema of the extremities. A month's application of the same preparations given every other day was sufficient to clear up the jaundice, edema, and pus, and bring about a decided improvement in the arthritis.

The third was a case of a year's standing beginning with frequent and irritable urination and ending, finally, with complete inconstancy of urine carrying 45 per cent. pus (centrifugal). Oral administration of drugs as well as the subcutaneous use of autogenous vaccines and the local treatment of the bladder and pelvis of the kidney failed to influence the course of the disease. Hexamethylenamine and the hypoiodite preparation were given intravenously every second day alternately for a short period, after which the hypoiodite preparation was used exclusively for a time, then the interval was lengthened to every other day. At the end of twenty-four hours after beginning treatment the centrifugal urine gave a reading of 9 per cent. pus. As a result of another injection at a twenty-four hour interval the pus fell to 3 per cent. and the bladder in the meantime had resumed its normal function. In a very short time the child had recovered sufficiently to resume her attendance at school.

The same favorable prompt action of preparations of which iodine in some form is the basis is exhibited, in a most constant manner, in certain forms of asthma, bronchitis, and pneumonia, and in the mixed type of infection complicating pulmonary tuberculosis.

Finally, there is a strong possibility that the work of Osborne will prove true for substances other than sodium iodide, such as preparations carrying the different salts of arsenic, mercury, and iodine, either alone or combined, as has been demonstrated clinically in the treatment of locomotor ataxia and other pathological conditions of the central nervous system.

Should these opinions be substantiated in time by others working along this line, then the intravenous application of remedies properly adapted to and rendered chemically compatible with the blood will find their way, probably through the arachnoid membrane and cells by osmosis, into the cerebrospinal fluid more promptly than when applied in any other manner except by spinal puncture directly; however, spinal puncture is subject to so many well deserved objections that it may very probably become obsolete and will not be practised except for diagnostic purposes.

Résumé.—1. It would seem logical to reserve the oral administration of remedial substances for pathological conditions of the ailmentary tract and its anexa.

2. It would seem equally logical to reserve the subcutaneous and intramuscular application of remedial substances for pathological conditions remote from the alimentary tract.

3. It is without doubt logical to utilize intravenous methods for pathological conditions remote from the alimentary tract and readily accessible by the blood stream, either directly or by osmotic processes, and especially in reaching therapeutically otherwise inaccessible areas.

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535 MACK BUILDING.

FRACTURE OF THE NECK OF THE FEMUR.

A Report of Three Cases with Delayed but Successful Application of the Whitman Abduction Treatment.

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NEW YORK.

It is admitted by most surgeons today that for a recent fracture of the neck of the femur the Whitman abduction treatment is the most effective method and offers the best opportunity for complete healing with return of good function. The success of this method is due to the fact that it includes the two essentials for healing in all fractures, namely, proper alignment and contact of the fragments, and effective immobilization. In long standing cases where the fracture has existed for months or years, some form of operative repair is necessary to obtain a satisfactory functional result. There is, however, a group of cases seen from one to six months after the injury in which healing has not taken place; marked absorption of the femoral neck is as yet not apparent and there are persistent pain and disability. In these cases, most surgeons, believing non-union to be inevitable, advise bone pegging, nailing, Bracket's operation, Whitman's reconstruction of the hip, and various other operative procedures. I have recently had three such cases in which the application of the Whitman abduction treatment, used in the classical way, has given complete union and cure.

Case I.—J. M., male, 34 years old, was referred to me by Dr. Williams on Sept. 20, 1918. Four months previously he had fallen and sustained a fracture of the neck of the right femur. He was taken to a hospital where a plaster of Paris bandage was applied. the splint was left on for 7½ weeks, after which it was removed and the patient was encouraged to walk. When he came to me he walked with the aid of crutches and complained of pain in the right hip and marked weakness of the right lower limb.

Examination showed that the right lower limb was 1⅛ inches shorter than the left, the limb was in moderate outward rotation, the great trochanter was elevated above its normal position, abduction and inward rotation were entirely restricted and *x*-ray examination showed a typical fracture of the neck of the femur. The fracture line was distinctly visible and passed through the neck near the great trochanter. The angle between the neck and shaft was reduced to about 100 degrees. There was evidently no union of the fracture. My intention in this case was to drill a hole in the great trochanter and the neck of the femur and insert a graft according to the method advised by Dr. Albee.

On account of the comparative youth of the patient, and at the suggestion of Dr. Charlton Wallace, I decided to try the typical Whitman treatment. The patient was given a general anesthetic, and by manipulation the limb was pulled down and brought into a position of marked abduction, inward rotation, and complete extension. In this position a plaster of Paris spica bandage was applied extending from the nipple line to the toes. A subsequent *x*-ray showed that there was practically perfect alinement of the fragments with reestablishment of the normal angle between the neck and shaft. The spica was left on 4½ months. When the plaster was removed the fracture was found entirely healed, the head of the femur moved with motions of the shaft, the deformity had been entirely corrected, and the sensitiveness of the hip had completely disappeared. The fracture was evidently healed. Another short plaster of Paris spica was applied from the nipple line to the knee. Seven weeks later the plaster was removed. An *x*-ray examination at this time showed that there was an abundant callous formation at the site of fracture. The fragments were in good alinement. He was now able to bear weight on his limb without any discomfort, although he was encouraged to walk about only with the aid of crutches. A third short plaster of Paris spica was applied to assure fixation of the hip. This was removed seven weeks later, when it was found that the fracture was firmly healed. He had no pain or sensitiveness of the hip. The limb was in about 15 degrees of abduction, and in complete extension. He was able to flex it to about 120 degrees and there was some rotation in both directions. All motions were painless. Six weeks later a note was made that the fracture was entirely healed, that he was able to walk comfortably without effort and without any support.

Thus, by the use of the classical Whitman abduction method of treatment applied in this case four and a half months after the injury, complete healing of the fracture and restoration of function were obtained within a period of a little over nine months.

Case II.—Mrs. T. K., age 65, sustained a fracture of the neck of the left femur. She was treated with a short plaster of Paris spica for five weeks and then was encouraged to walk. She was given massage and manipulation. The pain and disability in the left hip steadily increased and five months after the injury she was referred to me.

Examination by me on June 5, 1920, showed that she was in good general condition, but was unable to walk without crutches. The left lower limb was in an attitude of outward rotation; there was prominence of the great trochanter and evident shortening of the limb. The left limb was 1¼ inches shorter than the right. An *x*-ray examination showed a fracture apparently at the base of the neck of the femur. The angle between the neck and shaft was reduced to a right angle. The line of fracture was plainly visible and there was a distinct gap between the head and the great trochanter. The gap was, however, not very wide and instead of an operative reconstruction or repair of the fracture, it was decided to apply the Whitman abduction treatment.

The patient was anesthetized, the limb stretched and manipulated and brought into a position of complete extension, inward rotation, and abduction of 20 degrees. In this position the limbs were of equal length. A long plaster of Paris spica was applied.

An *x*-ray picture taken through the plaster showed practically normal relation between the head, neck, and shaft of the femur. It is interesting to note that while in the original picture the head of the femur seemed to be practically in contact with the great trochanter as if the neck had been absorbed, in the second picture the neck was completely visible indicating that there had been a rotation of the fragments which obscured the presence of the neck.

About one month after the plaster had been applied the patient complained that she felt something slip in her hip and when a subsequent *x*-ray was taken, it was found that the shaft of the femur had slipped up a little. On August 10, 1920, the plaster was removed and the head of the femur was found to be moving with motions of the shaft. There was no longer any tenderness of the head, neck, or trochanter and, clinically, the fracture seemed to be healing. By measurement the left lower limb was ½ inch shorter than the right so that there evidently had been some slipping.

An *x*-ray picture taken at this time showed that the line of fracture was still distinctly visible. It also showed the upward displacement of the femur and that the lower border of the fracture line on the inner aspect of the great trochanter was ½ inch above the corresponding border of the neck. Nevertheless, there was good alinement of the fragments and the radiographer thought there was increased density of bone at the line of fracture, indicating healing. Another plaster spica bandage was applied and this was allowed to remain on two months. When it was removed the fracture was found healed and the alinement satisfactory. The patient was kept lying in bed for two months more, receiving baking and massage and manipulation to maintain abduction. She was then permitted to walk

about with crutches but bearing no weight on the injured limb. At the end of six weeks she began to bear a little weight on the injured limb and since then has progressed very favorably.

Examination on April 30, 1921, 10½ months after the application of the Whitman abduction treatment, showed that she was in good general condition. She was able to walk without the aid of crutches and bear a good deal of weight on the injured limb. The fracture was healed, although there was ½ inch shortening of the limb. When lying in bed she was able to elevate the limb demonstrating that she had good control of it.

In this case, seen five months after the injury, the fracture was treated by the abduction method and a satisfactory result was obtained.

CASE III.—J. N., 69 years old, sustained a fracture of the neck of the left femur on July 6, 1920. He was admitted to the Hospital for Ruptured and Crippled on August 12, 1920, with the typical symptoms of fracture of the neck of the femur. An *x*-ray picture showed a fracture through the neck with upward displacement of the great trochanter and reduction of the angle between the neck and shaft to a right angle.

At the time of his admission the question arose as to whether we could be successful with the application of the usual Whitman abduction method of treatment or would an operation be necessary to obtain a cure? I decided to use the conservative method of treatment as follows: On August 16, 1920, the patient was given a general anesthetic and the affected limb was manipulated and brought into a position of 30 degrees of abduction, complete extension, and moderate inward rotation. A long plaster of Paris spica was applied from the nipple line to the toes. An *x*-ray picture taken through the plaster showed a very distinct improvement in the position and the relation of the fragments.

Three months later the plaster spica was removed and the fracture was found to be clinically healed, that is, the head of the femur rotated with motions of the shaft. An *x*-ray picture at this time showed that the fragments were in apposition and in good alinement. A short plaster of Paris spica was applied and two months later it was removed. Examination showed that the limbs were of equal length, the hip was not at all painful, and the fracture was healed. The patient lay around in bed for another month, receiving baking, massage, and manipulation, the latter directed to retaining a fair degree of abduction. He was then permitted to get out of bed with the aid of two crutches bearing weight only on the unaffected limb. On March 31, 1921, 7½ months after his admission to the hospital, there was firm union and the patient was able to walk with the aid of only a cane.

This case demonstrates again the possibility of obtaining complete healing with the Whitman abduction method of treatment, even when it is applied some time after the hip was fractured.

The results obtained in the foregoing cases show that in ununited fractures of the neck of the femur, the Whitman abduction treatment may be applied even as late as five months after the injury with the expectation of complete healing and cure. It must be emphasized that we do not believe the abduction treatment to be applicable to cases of non-union in which there is marked absorption of the neck and upward displacement of the shaft. The cases here reported differ from the ordinary long standing case in that there was very little absorption of the neck, and that the interval between the neck and the shaft was still small and could be obliterated by the manipulation required by the technic of the abduction method. It is my belief that in these cases, more than in the fresh fractures, *proper* manipulation is indispensable for a good result, for it establishes contact and favorable alignment of the fragments. The contact is assured by the position of abduction. Several blows with a mallet over the great trochanter, as advised by Dr. Cotton, serves to irritate the fractured surfaces, increases the degree of contact, and favors healing. The immobilization should be as prolonged as in a recent fracture.

A FEW THOUGHTS ON PROSTATIC DISEASE.

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IN presenting the thoughts expressed in this paper, the writer is more actuated by a desire to keep in mind some of the more salient factors upon this important subject, than to offer anything of a unique nature.

One fact stands prominent at the very gateway of approach and that is that urinary diseases, especially those that fail to respond to the usual therapeutic measures and are chronic in nature, ofttimes find their etiology in prostatic involvement.

It is not our province to dwell upon the nature of the prostate, to digress upon its topographical relations, or to add the more common facts described in textbooks, except to call attention to the misnomer so universally applied and so generally employed, namely, "hypertrophy" of the prostate. The process is anything but a true hypertrophy, for it occurs at a time of life when atrophy and not hypertrophy is taking place. This so-called hypertrophy involves only certain parts of the gland, and if the term is to be applied at all, it should be clearly indicated in what parts of the gland the pathological tissue originates. This is a most important consideration, for upon a correct appreciation of these processes—adenomatous in character—is to be determined the most effective method of attacking them.

Anatomically considered, the prostate is divided into a posterior, a median, and two lateral lobes. Albarran emphasizes the fact that occasionally the anterior lobe of fetal life persists as well as some detached groups of glands. Recent investigations make it evident that the adenomatous masses arise from the median and from the lateral lobe and rarely from the persistent subcervical glands or a persistent anterior lobe, *but there is no evidence that they ever arise from the posterior lobe.*

The investigations* and studies of many British scientists and surgeons, including the brilliant observations of Mr. Thompson Walker, indisputably prove that the nature of the coverings of these adenomatous masses vary according to the different parts of the gland which are affected. Thus the masses occupying the lateral lobes are covered posteriorly by the posterior lobe and do not here come in contact with the capsule of the prostate. Laterally, they lie against the capsule of the prostate; superiorly, they abut upon the median lobe, while mesially they are covered solely by mucous membrane and by the stretched and atrophied capsule of the prostate, from which they cannot be separated by dissection even after removal from the body.

If the adenomatous mass arises from the median lobe, it is covered posteriorly by the posterior lobe

*"Suprapubic Prostatectomy," by Hugh Cabot, *Surgery, Gynecology and Obstetrics*, August, 1913, pp. 213-217.

and as its overgrowth takes it backward it comes in contact to a greater or less extent with the neck and wall of the bladder. Laterally, it borders upon the lateral lobe; anteriorly and superiorly, it is only covered by the thin, atrophied mucous membrane from which it cannot be separated or dissected.

The posterior lobe of the prostate lies wholly behind the ejaculatory ducts, thus forming part of the floor of the urethra. The sides of the prostatic urethra are formed by the lateral lobes, and the floor from the verumontanum to the orifice of the bladder by the median lobe.

Thus, in enucleating, by the intraurethral method, the mucous membrane tears at the sides, at the junction of the floor and the lateral wall up to the verumontanum, at which line it tears transversely following the line of the median lobe. Thus the undeniable fact—that by this method of enucleation the posterior lobe and its structures, especially the ejaculatory ducts, are left undisturbed.

Based upon these facts, it is evident that although such authorities as Mr. Freyer and Mr. Thompson Walker, the English surgeons, assert that in enucleation the entire prostate is removed, such a procedure would include removal of the posterior lobe, with portions of the ejaculatory ducts. Specimens preserved for observation and study never evidence the presence of these structures. In other words, what actually occurs in these operations of enucleation is that the adenomatous masses in the lateral and median lobes are shelled out from the capsule of the prostate at the side, from the muscular structure of the bladder neck above, and from the posterior lobe (the old so-called surgical capsule) below.

As was mentioned earlier, all urinary affections demand a thorough examination of the prostate. Thus, in so-called hypertrophy, the symptoms of the first stage are mainly dependent upon the condition of congestion in the prostate, bladder, and kidneys. And as this congestion is most considerable in the prostate, the most noticeable symptoms caused by it are disturbances of micturition and of sensation, due to the irritated state of the neck of the bladder. In the second and third stages we have in addition a series of symptoms due to mechanical obstruction to micturition, and to changes in the bladder and other organs consequent upon this obstruction.

The urinary findings are never constant. The examination may be negative, especially during the early stages of the disease. With the occurrence of congestion of the kidneys, there are evidenced albumin and casts. Later in the disease, as polyuria establishes itself, the specific gravity is low, commonly 1,003 to 1,006, and there is usually a small amount of albumin, although this may not be present. At this time a few casts are usually also found, but they may be absent even when the kidneys are seriously involved. However, with acute cystitis, the urine becomes thick from an admixture of pus and mucus, which often settles at the bottom of the vessel as a thick, ropy mass. The sediment also contains prostatic cells and many phosphates.

A word as to catheterization. Many cases are cured by it. Of course, this is applicable when the stage of partial retention has set in and the patient passes water, but is not able to empty the bladder completely. When absolute retention comes on suddenly, the catheter is indispensable, but even in these cases its use will later likely be given up.

It is to be remembered, however, that when entering upon the use of the catheter, we may learn if we are on the right track by noticing the effect upon the symptoms; but also a cystitis may develop, owing either to a too sudden evacuation of a distended bladder or to the introduction of foreign matter upon the catheter, or to irritation from constant use of instruments.

The evacuation of a distended bladder should be performed carefully and slowly. When the distention is extreme, the bladder should not be wholly emptied at one time, for if the internal pressure is too suddenly removed we are likely to find a congestion of the vesical mucous membrane, with escape of blood in the urine. The greatest care also should be exercised to follow rigidly the rules of antisepsis, for the introduction of germs into the bladder may start a fermentation of the urine with cystitis.

In what is often designated the third stage of the affection, systematic emptying of the bladder is as urgently called for as in the earlier stages; but the serious changes which are likely to have occurred in the ureters and the kidneys, plus the passive congestion which now exists throughout the urinary tract, makes the employment of the catheter a matter of serious concern, and so great may be the danger that it is better practice to leave the bladder undisturbed.

In these cases the patient's condition of comparative health makes a striking contrast with that alarming condition which may rapidly develop upon entering "catheter life." For a slight irritation of the bladder may be suddenly followed by a pyelonephritis, or perhaps even worse—renal congestion with suppression, uremia, and death. The dangers are alarming and imminent enough to make us hesitate and regard the condition with trepidation and reserve. But what good can accrue from inaction? What benefit can be attained by closing our eyes to the affection that confronts us? When catheterization is successfully accomplished, the disease may be moved back from the third to the second stage, and the patient, whose life appeared in imminent jeopardy, may again be regarded as in a state of apparent security.

Which cases, then, we may ask, are adapted to catheterization? Each of these must be decided upon the symptomatology in question. So much depends on attention to detail that we may sometimes be deterred from beginning catheterization with a careless and slovenly patient, when we should have resorted to it could we have counted on his intelligent cooperation.

Radical treatments aim at a cure. Perhaps the main reason why operative treatment has not been more generally successful in the hands of some surgeons is to be found in the age of the patients, for in the majority of cases such affections attack men between fifty and eighty years of age, and it is obvious that severe operations become more dangerous with advancing years. Individual conditions are often the governing factors in determining the advisability of operation. Social position plays a dominant rôle. A man of the lower class who cannot afford the time, trouble, and careful atten-

tion to detail necessary to make "catheter life" tolerable, may wisely be advised to have some operation performed. A man of advanced years, in comfortable circumstances, may be kept quite at ease by less radical and safer methods.

Again, so often those of a better social position are among the more intelligent, or they can secure the services of a trained male nurse or of some one who can appreciate the dangers and the trials incident to the management of catheterization, for the greatest care must be given to gentleness as well as to asepsis. Frequently after the first few days of catheterization the inflammation of the urethra manifests itself with hemorrhage after each use of the catheter. False passages not infrequently result from forced use of the instrument. Epididymitis is a not uncommon complication.

With these few selected thoughts on an all-important subject, we glance for a moment at the subject of prostatectomy. The mortality of this operation finds its greatest expression in lack of kidney function (60 per cent.). The condition is most largely brought about by the back-pressure arising from obstruction by the enlarged prostate, the patient dying of uremia. It is estimated that about 11 per cent. of fatalities are due to shock and to hemorrhage. Very remote and rarer causes of death following this operation are: Pulmonary embolism, cerebral hemorrhage, and pneumonia. It is the consensus of opinion to-day among the best surgeons that there are no contraindications to the operation.

Some surgeons prefer the suprapubic operation; others, the perineal. The average *functional* results of the suprapubic operation are, as a rule, better. General surgeons, as a class, adopt this latter method, and it is for this reason believed that the mortality is a little higher than by the perineal pathway. The perineal method is most frequently the choice of skilled genito-urinary surgeons and their long experience in this particular branch of surgery accounts, no doubt, for a lesser mortality than by the suprapubic operation. However, the fact remains that among the sum total of all operators, suprapublic prostatectomy is the operation of choice. But, as in all operations, the one best suited to each case is of first importance and it is, therefore, often wise to examine the bladder carefully with the cystoscope before deciding which operation should be undertaken, or whether any operation is likely to give permanent relief.

Mention is merely made of Bottini's galvanocaustic operation, of bilateral orchidectomy, introduced to the notice of the profession by the late Dr. J. William White, of the University of Pennsylvania, of the operation of vasectomy, of ligation of the cord, of both internal iliac arteries, etc., as measures proposed at different times by eminent surgeons for the cure of so-called prostatic hypertrophy. All of them have fallen into ill-repute. In many instances, after employment of Bottini's operation, stenosis of the vesical neck has occurred. The operations of orchidectomy and vasectomy have resulted in repeated failures; while ligation of the cord and also ligation of the internal iliac arteries are operations that many years ago proved unnecessarily severe and unwarranted.

218 SOUTH FIFTEENTH STREET.

COMPULSORY HEALTH INSURANCE.

A CONNECTICUT VIEWPOINT.

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THE question of compulsory health insurance will propably be one of the important issues considered at their next meeting by several State legislative bodies. In this country the subject was first taken up by the American Association for Labor Legislation, with headquarters in New York and with about 3000 members. This association had previously been active in securing the passage of the workmen's compensation laws which have been adopted in forty-two States. In December, 1912, it organized its health insurance committee. In 1917 the bill was introduced into the Connecticut State Legislature. A commission was appointed to investigate the matter. This commission reported unfavorably.

The standard bill adopted by the American Association for Labor Legislation provides that all employees earning less than a given amount ranging from $800 to $1,200 shall be entitled to medical, surgical, hospital and nursing care, dental treatment, maternity benefits, cash benefits, and funeral expenses. These services are to be paid for out of a fund of which the State furnishes one-fifth. Two-fifths are to be contributed by the employee in the form of compulsory payments of a certain percentage of his wages, variously estimated at from three to seven and one-half per cent., and the remaining two-fifths are to be contributed by the employer. Employees receiving less than $5 per week pay nothing, the employer paying eighty per cent., and the State twenty per cent. Medical and surgical attendance is provided either by the appointment of certain physicians as whole time insurance physicians or by the creation of a panel or list of physicians in each district willing to care for those insured. Proposals for the payment of physicians also differ. One is to pay each physician a fixed salary; another is an annual pro rata division among all the physicians on the panel, of the amount appropriated for the medical and surgical services for the district; a third is a capitation series by which each physician is paid in accordance with the number of persons treated. Let us for a moment consider the arguments in favor of such legislation. The brief of the model bill prepared by the American Association for Labor Legislation claims: (1) That there is at present a disproportionately large amount of sickness among employed persons causing immediate loss of time and wages amounting each year to half a billion dollars. (2) That the wages paid American working men are inadequate to enable them to meet the expense of sickness and to bear the losses consequent on sickness and incapacity, and that it is therefore necessary to distribute this burden among three parties—the employee, the employer, and the State. Commenting on this, Dr. George Blumer, president of the Connecticut State Medical Society, writes:

These statements are based upon statistics of a rather fragmentary character, gathered at various times and from a variety of sources. There is no direct evidence that they are applicable to the conditions found in the State of Connecticut in the year 1921. Before the ques-

tion of health insurance is seriously considered in Connecticut, accurate data covering the conditions as they exist in this State are necessary: (1) The amount of sickness among employed persons as compared with the general public must be secured. (2 The nature of this sickness. (3) The average amount of wage per year lost by each worker on account of sickness. (4) The yearly incomes of the various types of workers in the State. (5) The percentage of wage earners whose incomes are insufficient to meet the expenses incident to sickness.

In addition to these data information is also needed as to the provisions already existing in the State for the medical and surgical treatment of those unable to meet the expenses incident to sickness.

When all these data have been obtained the whole question of the best methods of correcting whatever unsatisfactory health conditions may be found should be considered without prejudice. Any promising and workable plan should be carefully scrutinized and the method should be adopted which offers the greatest hope for success with the least expenditure of public money and the least disturbance of the rights of the public and the medical profession.

The matter of compulsory health insurance should be considered in a spirit of fairness. We do not wish to go on record as opposing from selfish or financial reasons any method which will reduce sickness in the community or help the working man. The need of exact statistics covering the care of the sick poor is, however, very essential. As presented, the proposed plan is simply a method of taxing the citizens of the State, either directly or indirectly, to furnish medical and surgical service to maintain the productive efficiency of part of the population.

The American Medical Association and the Federation of Labor have both gone on record as being opposed to compulsory health insurance. It is essentially a socialistic idea. All the cost will ultimately come on the consumer and the citizen. Neither the employee nor the employer as such will bear any real part of the expense. We are not faced with any such problem as exists in England, owing to the prevalence of benefit societies. Our medical profession is probably the best trained in the world. Its personnel is of the highest possible type, with rare exceptions, considering the number of practitioners. What would happen if some such plan as has been previously outlined was adopted, for example, in Connecticut. The workman, finding that a certain amount was deducted from his wages each week, would immediately demand that they be increased enough to make good this deficit. The increased wage would add to the operating expense of the plant. The employer could hardly be expected to pay his assessments out of his profits. He would add his share to the operating account. For the reasons above stated the cost of his product would be correspondingly increased. So in the end the public pays and the high cost of living is further increased. The one-fifth contributed by the State could be paid out of the State treasury only in money secured by increased taxation of its citizens.

The proposed plan is really not insurance at all, but simply a plan for providing medical, surgical, and hospital care in order to increase the industrial output of a portion of the population at the expense of the entire citizen body through direct and indirect taxation. It is approximately estimated that it would cost the State of Connecticut two million dollars to introduce compulsory health insurance and that the annual expense, including administration, would be at least this amount and probably a good deal more.

In writing this paper information has been drawn freely from the public health series of the American Medical Association, and especially from the valuable article on health insurance and physicians written by Frederick R. Green, M.D. The concluding paragraph of this article sums the matter up as follows: It is suggested that each State, where bills are presented, request the legislature to appropriate a sufficient amount of money to enable the State Board of Health to make a complete and exhaustive study of the entire State, showing how the existing health organizations may be increased and developed to a point where every citizen of the State regardless of his economic condition or industrial status may be protected from disease and may enjoy the highest degree of efficiency.

The statement has been repeatedly made that compulsory health insurance is inevitable. There is not the slightest basis for such an assumption. It is no more inevitable than the adoption of any other proposed measure.

In New York State during the past few years the question of compulsory health insurance has received special attention. Several bills have been introduced into the legislature. Both the public and the profession, through a campaign of education, were informed regarding their fallacies. They failed to pass and this in a State where socialism has many adherents.

Each physician should cooperate in every way with the committee of the State Medical Society in informing the public and the profession regarding the exact status of compulsory State insurance. The chairman of the Connecticut State Committee considers it very essential that each physician make a thorough investigation of the matter. It would perhaps be wise for the County Associations to issue a short pamphlet containing the needed information or to send a copy of Dr. Green's article in the Public Health series to the members, thus stimulating their interest in this important matter.

67 TRUMBULL STREET.

SOME REMARKS ON THE USES AND ABUSES OF PITUITRIN IN OBSTETRICS.

BY I. JOSEPHSON, M.D.,

NEW YORK.

So long as the general practitioner continues to accept the care and treatment of the parturient woman this branch of medicine will continue to remain a thorn in his otherwise not too roseate existence. Time and the stork wait for no man, and while the necessity remains he will endeavor to find ways and means of accommodating himself to the irregularities resulting therefrom. In spite of the various newfangled ideas which have from time to time arisen in his efforts to lighten his burden and in his attempts to alleviate somewhat the suffering incident to labor, from the beginning of the history of medicine up to and including the recent popular but short-lived twilight sleep, the obstetrician today is just as powerless in these respects as he was at the start, and no doubt will remain so till the end of time.

Although the physician has made great strides

in his management of the abnormal or complicated confinement case, the so-called normal or uncomplicated case must be left to nature to take care of as she will, in spite of the inconveniences which are often the lot of the physician in conducting the same. Mealtimes are upset, sleep is disturbed, vacations are interfered with, and the normal routine of life is not of the smoothest. As we cannot control Nature's whims, and since the physician knows that he will be required to make these sacrifices, he must either be willing to submit to these irregularities or leave this branch of medicine strictly alone. Any effort on his part to shorten the labor by injudicious means in order to save time, such as the unnecessary application of forceps or the hypodermic injection of drugs when no other real reasons for these procedures present themselves except pressure of time, cannot but be accompanied by a considerable amount of danger.

It is against the indiscriminate use of pituitrin for this purpose and to point out that like any other drug it has its indications and contraindications that these lines are written. It is true that the literature on the value of pituitrin in obstetrics is voluminous and it would seem as though any further remarks on the subject were superfluous; that this topic has been fully discussed and that the application of this drug is thoroughly understood by the average practitioner. But we know that this is not the case, for the ruptured uterus and stillbirth after its exhibition are still heard of only too frequently. In view of these facts, a few more words added at this time will not be out of place.

I happened recently to glance casually through the book kept in the delivery room for the entry of medication during labor in a maternity hospital while I was at the time waiting for a private case of mine to deliver herself, and was surprised to note the frequency with which the entry "Pituitrin 1 c.c." was made after the names of many of the patients delivered by private physicians. I was induced, as the result of this discovery, to make some inquiries among some medical friends with a view to ascertaining how and when this drug was used in the routine of the average obstetrical practice. The most surprising result of this investigation was the admission by most of the men interviewed that they were in the habit frequently of administering pituitrin when pressed for time in cases that were progressing uneventfully. By shortening the labor in this way they were enabled to keep other appointments or to attend their office hours on time, when they found that the labor if not terminated in some fashion would interfere with their other work. It would, therefore, not be amiss to review briefly the acknowledged indications of the present-day uses of pituitrin in order further to impress upon the physician that we are dealing with a drug that cannot be respected too highly and which must be handled with the greatest care.

Pituitrin to-day is used most frequently in the following instances: Firstly, in uneventful labors after full dilatation, with the head on the perineum, when it seems all will be over with a few more pains, but the uterus suddenly gives up and refuses further to contract. A small dose will often in such a case produce the few necessary contractions to complete the delivery. Secondly, to increase the force of the contractions in a slowly progressing tedious labor, a small dose of four or five minims administered at intervals depending upon the progress of the case will increase the force of the uterine contractions and so shorten the labor. Third, it is often used as a preliminary to the application of forceps, the object being to force the head more securely into the pelvic canal in order that the delivery may be facilitated. Fourth, during cesarean section it is a common procedure to administer an ampoule of pituitrin before the uterine wall is incised, the object being to have the uterus contract firmly by the time the placenta has been extracted and the uterus is being sewn up. The fifth and the most important use of this drug I will discuss later.

We will concede that in all the instances cited it has acted like a charm, as it often does, and were it always to do what we expect of it, nothing further would need to be said on the subject. But there are few drugs that are so protean in their action as pituitrin, as any physician who has had the least experience with it will admit, and because of its uncertainty in its action in the most carefully selected of cases it is a dangerous drug to use in any instance. We often find that it will, in some cases, when injected, produce powerful contractions within a few minutes and if any unrecognized maternal or fetal dystocia be present dire consequences may ensue; at other times it will produce no effects until half an hour or more has passed; and finally it frequently fails to have any action at all. Also we are occasionally apt to find our disappointment upon its failure to act increase to chagrin on being confronted by a stillbirth, after delivery finally takes place, which we cannot trace to any other source but to the injected pituitrin.

However, we are none of us infallible, and it is not my purpose or desire to pick any bones with the physician who uses pituitrin after careful thought and with an honest conviction that it is indicated in the particular case in which its use is contemplated. My main objection is the practice of exhibiting this drug which has such powers for evil as well as good, a drug that is dangerous to use at its best, for otherwise but strictly legitimate reasons and not as a valuable adjunct in the saving of time. To repeat, the practice of obstetrics must of necessity consume a great deal of the physician's time, and unless he is prepared to devote the required time he should not accept the confinement case at all.

I believe I have made it plain, however, that not only do my objections to the use of pituitrin include those instances where it is given unnecessarily, but I personally believe that it should be withheld even where its use is sanctioned; and when I have my choice between forceps and pituitrin I always choose the former, for I can manipulate the forceps at will, but once the drug is in the system it is beyond our control.

When, then, shall we use pituitrin? There is one and only one legitimate use for pituitrin and that is in post-partum hemorrhage, either as a prophylactic or in the actual treatment. Used for this purpose only, there is sufficient excuse for its eminent position in our medical armamentarium. While the fetus is still in utero its use, no matter

how favorable the conditions, is always fraught with more or less danger. Once the child is on this side of the world, pituitrin is one of the greatest boons of the obstetrician. Every physician knows that no matter how smoothly a labor is progressing, his anxiety is not over until the placenta is expelled in its entirety and the uterus is contracting firmly. I make it a practice in every labor case, no matter how uneventful the progress, to have handy a syringe-full of an ampoule of pituitrin. After delivery, at the slightest sign of excessive hemorrhage I immediately inject the whole ampoule, whether the placenta has been delivered or not. If the placenta has not been delivered it will aid in its expulsion and by its action on the uterus check a tendency to further hemorrhage. If the placenta has already been expressed and hemorrhage follows, the pituitrin is immediately injected and then the other methods for the treatment of post-partum hemorrhage are proceeded with. When so used, it is rarely necessary, except in those cases where the pituitrin fails to act at all, to do more than to administer ergot by mouth and maintain the contractions of the uterus with the hand. The satisfaction derived from pituitrin when used for this purpose exclusively should render the profession thankful that it possesses this adjunct in the treatment of this terrible complication instead of trying to deflect the use of the drug into fields of known danger.

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Medicolegal Notes.

Wrong Diagnosis Not Alone Actionable—Failure to Cure Does Not Raise Presumption of Negligence.—In an action against physicians for malpractice it was claimed that the defendants made a negligent and unskillful diagnosis of the plaintiff while he was suffering from osteomyelitis, and applied a vaccine treatment instead of operating. The case was one in which one of the defendants, consulted by the plaintiff, considered that he should have advice and assistance, and the other defendant was called into consultation. Together they took a history of the present ailment, and, learning of past ailments, they stripped the patient, that they might better observe the results of such past ailments and treatment. Numerous scars appeared from previous operations. Because of a history of osteomyelitis, they made use of the common tests to discover the presence of that disease, including pressure, blood count to determine whether there was an increase of white cells, microscopic examination of the blood for infection, test of blood pressure, urine analysis, and finally an *x*-ray examination of the affected arm, showing, as it appeared to them, that there was a normal condition of the bone. From all of this they determined that there was no osteomyelitis at that time and no need of a surgical operation and that a vaccine treatment was proper. There was a conflict between the physicians testifying hypothetically as to whether the symptoms indicated osteomyelitis at that time, and as to whether the proper method of treatment was followed, but the court did not go into that controversy, declaring that it must be governed by the principle well stated by Judge, now Chief Justice, Taft, in Ewing v. Goode (C. C.), 78 Fed., 442, as follows: "When a case concerns the highly specialized art of treating * * * with respect to which a layman can have no knowledge at all, the court and jury must be dependent on expert evidence. There can be no other guide, and, where want of skill or attention is not thus shown by expert evidence applied to the facts, there is no evidence of it proper to be submitted to the jury. Again, when the burden of proof is on the plaintiff to show that the injury was negligently caused by defendant, it is not enough to show the injury, together with the expert opinion that it might have occurred from negligence and many other causes."

The fact that the defendants were mistaken in their treatment was not alone sufficient to require them to respond in damages. A physician is not ordinarily liable for damages consequent upon an honest mistake or error in judgment in making a diagnosis, in prescribing a treatment, or in determining whether an operation is necessary, where there is a reasonable doubt as to the nature of the physical conditions involved, or as to what should be done in accordance with recognized authority and good current practice. A surgeon might possess great learning and skill, and, when performing a certain operation, might be as careful as possible, yet it might be that a prudent and skilful man of that profession, in the same circumstances and conditions, would not have performed such an operation; the difference being in their judgment as to the necessity of the operation. Gore v. Brockman, 138 Mo. App., 231; 119 S. W., 1082.

There is no presumption of negligence or of want of skill. The mistake of the physicians was in determining after careful diagnosis the method of treatment they would follow; that a cure would be effected by the use of vaccine, without surgery. Having determined the method of treatment, had there been a question as to whether they were careless and negligent or unskillful in the use of that method, there would clearly have been a question for the jury as to a fact; for instance, had they operated on the wrong arm (Sullivan v. McGraw, 118 Mich., 39; 76 N. W., 149), or sewed up a sponge in the abdomen (Gillette v. Tucker, 67 Ohio St., 106; 65 N. E., 865; 93 Am. St. Rep., 639), or rendered unskilful or negligent treatment after miscarriage (Becker v. Janinski, 15 N. Y. Supp., 675). Where, however, there is a state of fact conceded or proved, it becomes the duty of the court to draw the conclusion as a matter of law. Judgment for the plaintiff was reversed for a new trial.—Edwards v. Uland (Ind. App.), 131 N. E., 240.

Cross-Examination of Medical Witness as to Course of Bullet Through Clothing.—In a prosecution for homicide, objection was made to the introduction of the clothing of the deceased worn at the time he was shot. An issue was made as to whether deceased was facing the accused, when the bullet entered his body, or fleeing from him. The doctor who saw the body of the deceased was introduced by the accused, and testified that he thought the bullet entered the deceased's left breast. On cross-examination he was shown by the state the coat and vest worn by the deceased, and shown to be in the same condition as at the time of the homicide, and from his examination of same he testified that the fibre of the clothing appeared to be pushed in at the bullet holes in the back and pushed out at the bullet holes in front, and that from his examination of the clothing he would conclude that the deceased was shot in the back. This witness stated that he had been practicing medicine for over 20 years, and had had much experience in gunshot wounds. The Texas Court of Criminal Appeals holds that it was not error to ask him the questions shown on cross-examination, and that the same general experience which would qualify him to express his opinion as to the entry and exit of a bullet in the body would also qualify him to express his opinion as to the same matter with regard to the clothing, if, indeed, such testimony requires as a predicate that knowledge and experience which is ordinarily deemed necessary to an expert witness.—Eason v. State (Tex. Cr.) 232 S. W. 300.

Exhibition to Jury of Parts of Deceased's Body in Homicide Case.—The Montana Supreme Court holds that it is not error to admit in evidence the skull, or a portion thereof, of the deceased in a homicide case, where it is in effect a part of the testimony of a physician and is necessary to illustrate the character and extent of the injuries, and the injury caused to the head by the blow and that caused by shooting the deceased in the breast were inflicted at the same time and by the same parties. Parts of the body of the deceased may be exhibited to the jury in a homicide case, provided they are first identified and are shown to be in the same condition as when found after the homicide, or as at the time of burial.—State v. Byrne (Mont.) 199 Pac. 262.

MEDICAL RECORD.

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THE SOLDIER IN ALL HIS RELATIONS.

THE first volume, or rather part of a volume,* of the medical and surgical history of the war, officially known as "The Medical Department of the United States Army in the World War," is just off the press of the Government Printing Office. In his letter of transmission to the Secretary of War, the Surgeon General states that the various parts of the history, "irrespective of sequence in volume numbers, will be published as the material becomes available. "Army Anthropology," therefore, however important, does not appear first because it is deemed the most important part of the history, but merely because it is the first to be ready for the printer. It contains 635 pages, including table of contents,, appendix, consisting of 139 statistical tables, and the index of 60 pages. It is bound in dark red buckram, with back imprint in gold. The text contains 194 statistical tables, and 42 plates, and gives practically everything one could desire to know about the physical relationships of a large number of the draft recruits who constituted our fighting forces in the recent war. The study which this part of the history represents, we are told in the introduction, involves the analysis of the three standard physical measurements of the Army, taken on 1,000,000 recruits; with special reference to physical defects, taken on 2,000,000 recruits; and of a set of 17 other measurements made of 100,000 troops at demobilization, for the purpose of securing dimensions for uniforms. The whole study gives an insight into the sizes and proportions of the American male population, ages 21 to 30 years, and of dimensions with reference to health and development, to geographical distribution and environment, and to race and color.

One who has had no experience along either anthropological or military lines might well ask the utility of such intimate details as are involved in this study, as did a civilian whose attention happened to fall upon the item, "blue eyes with brown spots." Discussing the importance of anthropology in the Army, the authors tell us that for over a century armies have prescribed limits of size for recruits on various grounds. It is urged, they say, that small men (under 60 inches) cannot carry the prescribed equipment. Men over 78 inches are more apt to suffer from circulatory and other diseases. The size of men has a relation to the standard food ration, which differs in the English and Italian armies because of the difference in body size of the soldiers. Troops in an Army camp containing a large proportion of South Italians and Polish Jews from New York City should use an average amount of food per man different from that of troops composed mostly of Scandinavians. The leg length is important for the classification of troops which are required to make long marches. A knowledge of proportions of facial features is essential to gas-mask manufacturers. A knowledge of the size and proportions of the body is essential to the proper cutting of uniforms; it will also aid in detecting pulmonary tuberculosis and cardiac disorders, as well as thyroid and other diseases. A knowledge of racial characteristics is often necessary to decide on classification when military organizations are being formed on racial lines, such as Negro regiments or Slavic legions. And finally, we are told, the whole system of identification, whether by finger prints or by Bertillon's proportions, belong to the field of anthropology.

Of the major physical characteristics and measurements—age, stature, weight, chest circumference, and build—stature is one of the most important from a medico-military point of view, as it is the basis by which may be judged the build or robustness of the man. Experience has shown that a certain chest circumference and a certain weight are essential for the successful soldier, but these measurements are to be judged not absolutely, but in relation to stature. The importance of stature in relation to weight and chest circumference depends on the fact that it gives a warning for tuberculosis, hook-worm, and other diseases. The varying relation of weight to stature is a measure of build, and build is of importance as an index of physical robustness and general health. Chest circumference is of medico-military importance, first, because it may be used to measure lung capacity, and second, because it is an index of certain diseases. It is used in obtaining the index of robustness, an index which is believed to give a fair measure of vital resistance. Important as are stature and weight for military and medico-military purposes, they are not so important as is the index of build, which tells something of the physical constitution of a man, and, by implication and as a result of experience, also something about his ability to withstand the stress of warfare. In the matter of robustness and military efficiency, the Army ideals of selecting men of medium stature, the authors hold, is justified. In connection with the draft of 1917, efforts were made on more than one occasion to raise the minimum stature (60 inches) to 63 inches. This was due to failure to recognize that there was in this country

*"Army Anthropology," Part One, Volume XV, "Statistics," Prefaced under the direction of M. W. Ireland, Surgeon General of the Army, by Charles B. Davenport, Carnegie Institution of Washington (formerly Major, S. C., U. S. A.), and Albert G. Love, Major, M. C., U. S. A.

a great number of short men belonging to the Mediterranean races and to the group of Polish Jews in whom the mean stature is only slightly above 63 inches. Experience in the Italian army indicated that even short men, if they are not too far removed from the standard of their race, are capable of performing excellent military service. The authors hold that if it ever again becomes necessary to institute a selective draft in this country it should not be forgotten that we have a great population of short men which includes many thousands for whom a stature of 60 inches is not a greater departure from the average than a stature of 65 inches is in men of the Nordic races.

Space does not permit the discussion of the many interesting questions involved in the various other dimensions — sitting height, span, sternal notch, height of pubic arch, neck circumference, breadth of shoulder, chest diameter, waist circumference, transverse diameter of pelvis, leg length, thigh circumference, calf circumference—the general comparative picture of white and negro troops; correlations of dimensions; eye color; hair color; and physical dimensions in relation to disease. The book is a "treasure trove" of information along all these lines, and since it is based on the largest number of such examinations ever recorded, it must prove of lasting interest and value from both anthropological and military points of view.

THE DIAGNOSIS OF CYSTS OF THE MESENTERY.

THE diagnosis of cysts of the mesentery at times offers such difficulty that it must remain problematical before the abdomen is opened. The size, consistency, fluctuation, and mobility may exist or be absent, so that no general rules can be laid down, and in spite of the great progress made in surgery of the abdomen there are still many cases in which the diagnosis of abdominal tumors is difficult, to say the least, so that exploratory laparotomy becomes practically necessary. However, a positive diagnosis of these cysts is based principally on the three following signs: (1) great mobility in every direction; (2) situation in the midline, and (3) a sonorous zone in front of the tumor. The latter sign has only a theoretical value, but mobility when very marked is certainly peculiarly characteristic of mesenteric cysts. This sign, however, soon vanishes in many cases on account of the development of adhesions to other viscera. When the growth is manifestly median, the presence of neoplasms of the spleen and kidneys can be eliminated, and if the cyst does not descend too far down bimanual palpation of the pelvic cavity will eliminate the diagnosis of ovarian cyst.

The tumor with which confusion is by far the most likely is a cyst of the ovary. At the onset of the process the lateral position of one and the median position of the other, and an attentive bimanual palpation of the pelvic cavity will leave no doubt as to the nature of the growth, but for this to be so the tumor must still be small. The mobility is very much greater in mesenteric cysts so long as they have not become adherent; they can then be moved in all directions while an ovarian cyst can be moved only up and down. Sometimes the percussion dullness is not uniform, as in ovarian cyst, some areas of tympany being present due to the interposition of coils of intestine between the cyst and abdominal parietes. The characters due to the location of the cyst become less distinct the lower the mesenteric tumor is placed, or when it dips into the pelvis and at the same time develops upwards in the mesentery. Occasionally, cysts of the broad ligament, instead of following their usual evolution, work up between the two folds of the mesentery and develop partially therein, and possibly cases of mesenteric cyst whose diagnosis is difficult may be secondary more often than is generally supposed. Hydronephrosis and cysts of the liver can hardly be mistaken for mesenteric cysts, but cysts of the omentum present the same symptomatology as those of the mesentery so that in each case an exploratory abdominal incision will be necessary to settle the diagnosis, and this likewise applies to cysts of the pancreas. A difficult diagnostic problem to solve is whether one is dealing with a fluid collection or a lipoma of the mesentery. Since both are situated between the two layers of the mesentery their objective signs are very similar. The consistency will not always be of much help, because many lipomata are almost fluctuating.

Secondary symptoms are common enough in cases of mesenteric cyst, consisting especially in abdominal distress, tension, and violent colic with the maximum pain around the umbilicus.

THE MODERN TREATMENT OF WOUNDS.

ALBRECHT sums up this subject from the post-bellum angle in the *Wiener klinische Wochenschrift.* At the outbreak of the war the entire surgical profession were adherents of the doctrine of asepsis. It took but little time to convince them that something more than asepsis was to be demanded to control wound healing, since most wounds were already badly infected when they reached the surgeons. Hence it was necessary to introduce antiseptic methods. These had to be either physical or chemical. Physical methods varied widely comprising on the one hand the mechanical principles of excision, resection, drainage, and flushing, and at the other extreme the use of heat and light. Chemical methods comprised the use of germicidal substances, which at first proved highly disappointing inasmuch as they could not be made to penetrate the tissues. These substances, however, developed other desirable qualities in that they stimulated phagocytosis and lymphorrhea and thus indirectly assisted Nature to expel the deeply placed microorganisms. At the same time healing was also promoted. The author classes wounds, for practical purposes, into recent, infected, and granulating. To

be recent a wound must have been inflicted within six or eight hours. Such lesions must be thoroughly cleansed and trimmed of all damaged fringe.

The only antiseptic used should be iodine tincture, on all doubtful surfaces. Primary complete suture, is then practised as an ideal which, however, does not usually make good in practice. The author would make the standard treatment one of incomplete suture and gauze drainage. Surgeons differ notably concerning the treatment of infected wounds. All agree as to a proper rest position. Wet dressings have more partisans than dry ones. Gauze dressings appear to exert a suction on the wound surfaces. If the discharges cannot readily be taken up by gauze, irrigation should be substituted.

Baths at blood heat are not sufficiently valued. In progressive infection the author recommends the permanent bath. When other treatment indicated has been carried out so that complications are for the time discounted the best resource is air, including the use of hot air. This has drawbacks in the shape of desiccation and cooling off, neither of which is desired. The main object of air treatment is the stimulation of wound secretions which it tends to bring about like wet dressings, but in quite a different fashion. Solar light is of use and is readily combined with hot air, as may also be the quartz lamp. Of chemical applications to infected wounds four classes were found of value during the war, namely, derivative of iodine, chlorine, quinine, and aniline. Of the first named isoform and Pregel's solution may be mentioned while the best known chlorine derivative was realized in the Carrel-Dakin solution. Of the quinine derivatives vuzin was the best known, and of the anilines pyoctanin and trypaflavin. This class of chemical antiseptics causes a flow of lymph over the surface of the wound. The granulating wound is best treated with ointments. To sum up in a formula, the ideal treatment of wounds is, however secured, an autoantisepsis. As a rule all other methods act by stimulating Nature's defenses—something which asepsis cannot do.

Animal Reservoirs of Virus.

Bacteriological infections might perhaps die out were there no such creatures as reservoir animals to harbor them in the latent intervals of diffusion of the diseases. At one time such a reservoir was looked on as more or less exceptional, but the fact is becoming realized that the greater number—and for all we know all—of bacteriological diseases have their special shelter of this kind. It need not follow in all cases that the reservoir helps to spread the disease. There is a possibility today that the rabbit can harbor the treponema but it can hardly aid in the dissemination of the disease syphilis. The rabbit spirochete may never have been in the human body at all. Dr. Joyeux, an authority on exotic and parasitic diseases, points out in *La Presse Médicale* for November 9, 1921, xxix, 90, that the sand-fly has a reservoir in the gecko lizard, and, by the same token, man is a reservoir for the reptile. Proof that the sandfly can carry the germ (*Leishmania*) of oriental boil from the lizard to man has not yet been completely supplied. The armadillo has long been known as a reservoir of a trypanosome which causes Chagas's disease. Several biting insects are known to be the medium of transmitting the disease from armadillo to man. The latter animal is probably not the exclusive reservoir, for the cat and also a species of wild guinea pig are more than suspected. The author omits mention of the crocodile as the reservoir of the trypanosome of sleeping sickness. Rats, or rather several of the rodent tribe, are reservoirs *par excellence*, for they harbor the causes of bubonic plague, rat-bite disease, and Rocky Mountain fever, the tick in question having as a host a small rodent, the *Citellus colubianus*. The goat is the reservoir for Malta fever and the dog may harbor the cause of kala-azar.

The Cancerogenic Substance of Tar Cancer.

The cancerogenic property of certain substances like tar, paraffin, soot, etc., is not the simple proposition which at first sight it appears to be. It is not enough to speak of "irritation" as if that word implied finality. Recently it has been shown that tarry principles may contain arsenical impurities. It must be shown exactly what the exciter of cancer cell formation is chemically. In the *Schweizerische medizinische Wochenschrift* for November 10,1921, li, 45, Bloch and Dreyfuss give an account of experimental mouse cancer of the skin with lymph-node and pulmonary metastases in which the nominal exciter was tar. The next step was to isolate from the complex substance known as crude tar the specific cancerogenic substance. From crude tar the authors passed to special purified fractions and found in part the same positive results. The chemical control of this research is necessarily long and tedious but so far as the work has gone many of the tarry ingredients have been eliminated. Extraction by boiling benzol and distillation may be used to eliminate many of the bases and phenols. The substance still unextracted which does not distill off is highly cancerogenic and thus far has not failed to engender the disease in the space of 4 months or less in a highly malignant form. Phenols and bases of low boiling point, such as have been extracted from the crude tar, are, interesting to relate, able to cause the formation of benign tumors in the same mice. It would be interesting to know whether these substances would have a similar effect in man, for of course it is very unsafe to argue from a cancerophilic mouse to men, the majority of whom are not constitutionally predisposed to malignant neoplasms.

The Medical Record Service Bureau.

Almost daily the Medical Record receives inquiries, from subscribers and others, on questions relating to medicine in all its branches—bacteriology, laboratory tests, new methods of treatment, medical practice laws in various States and foreign countries, bibliography, and every conceivable topic. These questions have grown to be so numerous that

the task of answering them has become too great for the office editorial staff. It has therefore been decided to secure the services of a special staff to whom these questions may be referred, and all our subscribers are invited to make use of this service freely. The questions should be typewritten, if possible, on one side of the sheet only, and the name and address of the querent should be on the same sheet. The answers will be returned by mail as promptly as possible, but when the questions are of general interest they may be published, with replies, in our columns. The name of the correspondent will not be given, however, without his consent.

News of the Week.

Mortality From Organic Diseases of the Heart.—The Department of Commerce, through the Bureau of Census, has just published figures showing that 124,000 deaths were due to organic diseases of the heart in the death registration area of the United States in 1920, and if the rest of the United States had as many deaths from this cause in proportion to the population, the total number of deaths from organic diseases of the heart in the entire United States for 1920 was 151,000, while for 1919 the number is estimated as 138,000, or 13,000 less than for 1920. For 1920 the rate was 141.9 against 131 per 100,000 population for 1919. "Adjusted" rates based on the standard million population have been calculated to permit better interstate comparisons for the year 1920. The highest adjusted rate from organic diseases of the heart for 1920 is 180.8 per 100,000 for the State of New York and the lowest is 87.3 for Kentucky. For States in which at least 10 per cent of the population was colored, adjusted rates have been calculated separately for the white and colored populations. In this group of States the highest adjusted rate for the white population is 179.8 per 100,000 for New York, and the highest rate for the colored population is 248.3 per 100,000 for the same State, while the lowest adjusted rate for the white population is 75 for Mississippi and the lowest for the colored population is 112 for Florida.

New York and Chicago Death Rates for 1921.—The death rate for New York City during 1921 was the lowest ever recorded in this city according to the mortality statistics made public by the Health Department. The general death rate in 1921 was 11.17 per 1,000 of the population, as compared with 12.93, which was considered a phenomenally low record in 1920. This means a saving of 8,992 lives. Ten years ago the death rate was 16 per 1,000. The infant death rate for 1920 was 71.1 per 1,000, the lowest rate ever reached by a great city. The 1920 rate was 85 per 1,000 living births. The death rate of children under five years of age in 1920 was 30.8, while in 1921 it was 23.8. Chicago has gone New York one better, with a mortality rate slightly under 11 per 1,000 of the population. This means a saving of 4,000 above that of 1920. Health Commissioner Dr. John Dill Robertson believes Chicago holds the record as the healthiest of any of the big cities of the country.

Campaign to Improve Health Conditions in the Philippines.—Governor General Wood has started an intensive campaign to improve health conditions in the Philippine Islands by teaching the people how to avoid and combat the most common diseases. He has instructed the Director of the Philippine Health Service to prepare a circular setting forth the causes of various diseases and the methods which can be used to prevent them and stamp them out. The circulars are to be posted in public places in every municipality of the islands, and are to be read to every class in the public schools throughout the archipelago.

Railroads Reduce Deaths.—An analysis of the latest Interstate Commerce Commission figures on the annual accident records of all railroad in the United States shows that fewer persons were killed in 1920 than in any year since 1898. The analysis, prepared by a committee of the American Railway Association, gives credit for this achievement to the combined efforts of the officers and employees of the railroads, the public, and the press in systematic safety education. In 1919 the ratio of passengers carried safely to passengers fatally injured was 4,529,000 to and in 1920 was 5,673,000 to 1.

The Physical Examination of the Employees of the New York City Health Department.—The New York City Health Department, which was one of the pioneers in instituting periodical physical examinations of its employees, having made provision for this work in 1914, in its Monthly Bulletin for November, 1921, submits the results of these examinations for the year 1920. The records show that a total of 8,512 examinations were made in 1920, of which 2,297 were men and 6,215 were women. These reports now extend over a period of six years. The one noticeable feature in the first reports is a rather larger number of cardiac impairments found in the male than in the female employees, for in every succeeding report the number of cardiac impairments is almost uniformly greater among women than among men. With regard to high blood pressure, the usual order of things is reversed, for the women in the department present persistently higher blood pressure than the men, showing that such impairments depend as much upon occupation as upon sex. The department has a large number of women engaged in hospital and field work which is vastly more laborious than the office work which engages so many male employees. Among women is found more anemia, low weight and low blood pressure than among men, as well as more indigestion and constipation. Thyroid enlargement, visceroptosis, and varicose veins are also more frequent among women than among men. The statistics show with what relative infrequency clerical workers, even those with a poor family history, show hypertension; it is the hard workers, those who toil day after day and who, perhaps, are subjected to nervous or mental tension at the same time, who so quickly show the signs of wear and tear, especially if the inherited arterial "rubber" is not of the best quality. The report calls attention to the importance of these periodical physical examinations in that they afford excellent opportunities for educational work on pre-

ventive medicine, for while didactic lectures and health leaflets are very useful, nothing can take the place of the individual instruction adapted to the patient's special needs. They also show in this group, as in similar groups, that a surprisingly large number of people who think they are well have ailments which they have never suspected.

The de Roaldes Prize of the American Laryngological Association, a gold medal of the value of $150, offered for the best original thesis upon a subject pertaining to Laryngology or Rhinology, is now open for competition to non-members of the association. Theses must be in the hands of the chairman of the prize committee, Dr. D. Bryson Delavan, 40 East Forty-first Street, New York, prior to April 1, 1922.

Yale School of Medicine to Have New Buildings.—Announcement has been made that the Yale Corporation and the Sterling trustees have decided to appropriate $1,320,000 from the Sterling funds for the erection of a new building for the Yale School of Medicine, to be known as the Sterling Hall of Medicine. The structure is to be built on property recently acquired by the university and will contain a library of 12,000 volumes, an auditorium, offices, rooms for unmarried instructors and laboratories, with an animal house and a power house adjoining. The project will carry out plans in the university's reorganization program for expansion of the School of Medicine.

New Medical Building at University of Alabama.—The contract has been let for a new medical building to be erected at a cost of $82,500 at the University of Alabama. Work will be commenced at once.

Law Suggested to Compel Fireproof Hospitals.—The Wisconsin State Industrial Commission has under consideration the advisability of amending the State building code to require all hospitals hereafter constructed to be of strictly fireproof material. This is brought out in a circular letter which the commission is sending to all physicians and surgeons in Wisconsin in which it asks for an expression of opinion as to the advisability of the change.

Seneca Falls Typhoid Suits to Start Soon.—The first of a series of suits against the Gould Manufacturing Company and the Seneca Water Company, growing out of the recent typhoid epidemic at Seneca Falls is scheduled for January 16 in the Supreme Court at Rochester, N. Y.

Leprosy in New York.—During a lecture delivered by Dr. William L. Somerset, Chief Diagnostician of the New York City Health Department, to physicians in the department building several lepers having the disease in "non-contagious" form were exhibited. It was stated that leprosy was much more prevalent in the community than was generally known, there being between eighty and ninety known cases of leprosy in New York City. These patients are kept under close observation by the Health Department. It was explained that they constituted no menace so long as they had no open lesions.

Physicians' Building for New Rochelle.—Through cooperative effort the erection of a large office building centrally located in New Rochelle, N. Y., and intended exclusively for the use of medical and surgical practitioners, has been commenced. Formal exercises were held on December 31, when the cornerstone was laid. Dr. George David Stewart of New York delivered the address of the day. While it is not intended that the project shall result in a close corporation, opportunity will be afforded for the development of the "group idea" in the practice of medicine. The new building will cost about $300,000.

New York State Scores High Record for Insanity.—The report of the State Charities Aid Association recently submitted to the State Hospital Commission states that more persons were sent to hospitals for the insane last year than in any previous year. At the end of 1921 patients in the thirteen State hospitals for the insane numbered 39,736, an increase of 1,445 over the number there a year ago and 6,642 more than the rated capacity of the hospitals. The report shows that those who had gone insane as the result of the use of alcohol were fewer than normal and that the increase was due partly to economic conditions and partly to war casualties. The report urges the establishment of occupational schools in connection with the hospitals as a therapeutic measure which will hasten the recovery of certain classes of patients, and also that mental clinics be more thoroughly organized and widely extended.

Hospital Notes.—A new and modern hospital and training school for nurses is to be opened in Cartagena, Colombia. Four Philadelphia doctors sailed on the steamship Santa Marta on December 21 to take charge of the new institution. They are: Dr. Raoul Bernett y Cordova, a resident physician of Pennsylvania Hospital; Dr. Kempton P. A. Taylor of Chestnut Hill; Dr. W. E. Sickner, Ph.D., of Minnesota, and Dr. Rafael Calvo, dean of the medical school of the University of Cartagena.

A supervisor's committee appointed to investigate regarding a suitable memorial for the soldiers of Madison County, N. Y., have recommended the erection of a county tuberculosis hospital. The site, buildings, and plant are to be provided through public subscription and the institution is to be maintained at county expense.

Plans have been announced for the development of St. Agnes Hospital, Fond du Lac, Wis., at an outlay of $500,000. The plans provide for an additional service unit of 100 beds, and for separate medical, surgical, maternity, and children's units.

A modern five-story hospital to cost approximately $150,000, is to be erected at Logan, W. Va., by an association of Huntington and Logan physicians. Construction work will be begun as soon as weather conditions permit.

Contracts have been let for a $75,000 State tuberculosis sanatorium at Norton, Kan., and active construction work is to be begun in the near future.

Lyon County will open its new $300,000 hospital near Emporia, Kan., on February 1.

Dr. Charles A. Powers of Denver, Colo., has been decorated by the President of France with the Legion of Honor (Chevalier) and with the Medaille de la Reconnaissance Française (bronze)

for services rendered the French wounded during the World War.

Dr. Glen E. Cullen has been elected associate professor of research medicine at the University of Pennsylvania.

Dr. George J. Heuer, associated professor of surgery at Johns Hopkins University, has accepted the chair of professor of surgery at the University of Cincinnati and assumed the duties of his new office on January 1. Dr. Mont R. Reid, formerly resident surgeon of Johns Hopkins Hospital, will accompany Dr. Heuer.

Dr. Leo J. Palmer of Watertown, N. Y., has been elected county physician of Jefferson County.

Dr. James B. Nicholls has been elected medical director of the Catawba State Tuberculosis Sanatorium by the Virginia State Board of Health.

Dr. Foster Murray, until recently first assistant resident physician at the Trudeau Sanatorium at Saranac Lake, N. Y., has been placed in charge of the four clinics conducted by the Tuberculosis Committee in the Borough of Brooklyn, N. Y.

Dr. Harry C. Clifton has resigned the position of city physician of Hartford, Conn.

Dr. Frederick S. Crossfield has been reelected rhinologist and laryngologist of the Hartford Hospital, Hartford, Conn.

Dr. Guilford H. Sumner has resigned his position of secretary of the Iowa State Board of Health, which he has held for the past twelve years.

Mr. Curtis E. Lakeman has been appointed secretary of the New York State Department of Health to succeed Dr. John A. Smith, resigned.

Dr. Reginald Farrar, representative of the Epidemics Commission of the League of Nations, died a victim of typhus fever in Moscow on December 28.

Comparative Birth Rates Among the White and Colored People in the United States.—The Department of Commerce, through the Bureau of the Census, announces that within the birth registration area of the United States, 1,395,523 births were reported among the white population and 103,796 among the colored in 1920, and that the birth rate per 1,000 females was 48.2 for the white and 52.8 for the negro. The area to which these figures relate includes 23 States and the District of Columbia and comprises 62.3 per cent of the total white population and 37.2 per cent of the total negro. In the case of the white population the births were further classified by country of birth of mother, the rate being then based upon the female population born in the same country. The lowest rate (38.2) for the white population appears for women born in England, Scotland and Wales, while in striking contrast are the rate for women born in Italy (160), and for the Japanese (188.5). For the negroes the highest rate (61.5) is for North Carolina and the lowest (10.1) for Maine, in which State only six negro births were recorded. That northern States do not always have low birth rates among the negro population is shown by the rate (54.7) for Massachusetts and the rate (46.5) for New York State. The rate for Indians was 48.3, though the range of rates for this part of our population was remarkably wide, from 16.7 in Maine to 114.7 in Virginia. It may be of interest to note that the 1,968 births of Indians exceeded the number of deaths of Indians in the same registration area by 90, indicating that the Indian population did not decrease in the birth registration area in 1920.

Medical Society Elections.—THE LEHIGH COUNTY (PENN.) MEDICAL SOCIETY, at its regular monthly meeting held in Allentown, Dec. 13, 1921, elected the following officers for the ensuing year: *President,* Dr. I. D. Weida; *Vice-Presidents,* Dr. J. D. Matz and Dr. M. S. Kleckner; *Secretary,* Dr. J. T. Butze; *Treasurer,* Dr. W. D. Kline.

THE DALLAS COUNTY MEDICAL SOCIETY, at its meeting in Selma, Tex., Dec. 9, 1921, elected the following officers for the ensuing year: *President,* Dr. F. W. Burns; *Vice-President,* Dr. C. D. Feulner; *Secretary-Treasurer,* Dr. P. Y. Donald; *Health Officer for Dallas County,* Dr. B. T. Lee.

THE TAYLOR COUNTY MEDICAL SOCIETY, at its regular meeting held in Abilene, Tex., Dec. 13, 1921, elected the following officers for the ensuing year: *President,* Dr. J. M. Estes; *Vice-President,* Dr. J. L. Pickard; *Secretary-Treasurer,* Dr. Stewart Cooper.

THE MONTGOMERY COUNTY MEDICAL SOCIETY, at its regular meeting held in Montgomery, Mo., Dec. 17, elected the following officers for the ensuing year: *President,* Dr. David Nowlin; *Vice-President,* Dr. G. E. Muns; *Secretary,* Dr. Buell Menefee.

THE SEABOARD MEDICAL SOCIETY, at its twenty-sixth annual meeting held in Norfolk, Va., Dec. 8, 1921, elected the following officers for the ensuing year: *President,* Dr. Joseph L. Sproull, Sanitarium, N. C.; *First Vice-President,* Dr. Joseph T. Buxton, Newport News; *Second Vice-President,* Dr. W. E. Warren, Williamston, N. C.; *Third Vice-President,* Dr. Cora Z. Corpening, Suffolk; *Fourth Vice-President,* Dr. F. T. Gates, Manteo, N. C.; *Treasurer,* Dr. George A. Caton, New Bern, N. C. (re-elected); *Secretary,* Dr. Clarence Porter Jones, Newport News (re-elected).

THE SOUTHERN SURGICAL ASSOCIATION, at its thirty-fourth annual meeting held in Pinehurst, N. C., Dec. 13-15, 1921, elected the following officers for the ensuing year: *President,* Dr. C. Jeff Walker, New Orleans; *Vice-Presidents,* Dr. Vilray P. Blair, St. Louis; Dr. Robert L. Gibbon, Charlotte; Dr. Hubert A. Royster, Raleigh; *Secretary-Treasurer,* Dr. Guy L. Hunner, Baltimore.

THE SIXTH DISTRICT BRANCH OF THE GEORGIA MEDICAL ASSOCIATION, at its annual meeting held in Macon, Dec. 14, 1921, elected the following officers for the ensuing year: *President,* Dr. A. G. Alexander, Forsyth; *Vice-President,* Dr. H. W. Copeland, Jackson; *Secretary,* Dr. G. Y. Massenburg, Macon.

THE ONONDAGA MEDICAL SOCIETY, at its meeting held in Syracuse, N. Y., Dec. 14, 1921, elected the following officers for the ensuing year: *President,* Dr. George W. Hawley; *Vice-President,* Dr. H. G. Weiskotten; *Secretary,* Dr. Philip Cooper; *Treasurer,* Dr. George M. Retan.

THE FULTON COUNTY (GA.) MEDICAL SOCIETY, at its annual meeting held in Atlanta, Dec. 16, the following officers were elected for the ensuing year: *President,* Dr. Rufus T. Dorsey; *Vice-President,* Dr. H. R. Donaldson; *Secretary-Treasurer,* Dr. Grady Clay; *Censor,* Dr. W. E. Pearson.

THE MARSHALL COUNTY MEDICAL ASSOCIATION at its regular meeting held in McMechen, W. Va., Dec. 13, 1921, elected the following officers for the ensuing year: *President,* Dr. P. D. Barlow, Wheeling; *Vice-President,* R. A. Ashworth, Moundsville; *Secretary,* Dr. Conklin, Wheeling.

THE SEDGWICK COUNTY MEDICAL ASSOCIATION, at its annual meeting held in Wichita, Kans., Dec. 13, 1921, elected the following officers for the ensuing year: *President,* Dr. W. P. Callahan; *Vice-President,* Dr. John W. Cheney; *Secretary,* Dr. Leon Matassarin; *Treasurer,* Dr. A. E. Gardner; *Censor,* Dr. L. T. Warren.

THE AVOYELLES PARISH MEDICAL SOCIETY, at its regular meeting held in Cottonport, La., Dec. 14, elected the following officers for the ensuing year: *President,* Dr. Philip Jeansonne, Plaucheville; *Vice-President,* Dr. Kirby A. Roy, Mansura; *Secretary-Treasurer,* Dr. S. J. Couvillon.

THE BUCHANAN COUNTY MEDICAL SOCIETY, at its annual meeting held in St. Joseph, Mo., Dec. 7, 1921, elected the following officers for the ensuing year: *President,* Dr. Fred H. Ladd; *First Vice-President,* Dr. E. S. Ballard; Second Vice-President, Dr. W. H. Minton; *Secretary-Treasurer* (re-elected), Dr. O. C. Gebhart.

THE PARKER-PALO PINTO COUNTY MEDICAL ASSOCIATION, at its annual meeting held in Weatherford, Tex., Dec. 14, elected the following officers for the ensuing year: *President,* Dr. Charles MacNelly; *Secretary-Treasurer,* Dr. P. R. Simmons.

THE COLUMBUS (OHIO) ACADEMY OF MEDICINE, at its regular meeting held December 16, 1921, elected the following officers for the ensuing year: *President,* Dr. E. A. Hamilton; *Vice-President,* Dr. W. C. Murphy; *Secretary,* Dr. James A. Beer; *Trustee,* Dr. E. W. Schueller.

THE KENT COUNTY (MICH.) MEDICAL SOCIETY, at its annual meeting held in Grand Rapids, Dec. 14, 1921, elected the following officers for the ensuing year: *President,* Dr. Alden H. Williams, Grand Rapids; *Vice-President,* Dr. W. E. Strong, Rockford; *Secretary-Treasurer,* Frank Cameron Kinsey.

THE WAYNE COUNTY (N. Y.) MEDICAL SOCIETY, at its annual meeting held in Lyons, Dec. 14, 1921, elected the following officers for the ensuing year: *President,* Dr. J. R. Sanford, Newark; *Vice-President,* Dr. Robert S. Carr, Williamson; *Secretary and Treasurer,* Dr. L. H. Smith, Palmyra.

THE MEDICAL SOCIETY OF CHAUTAUQUA COUNTY (N. Y.), at its annual meeting held Dec. 14, 1921, elected the following officers for the ensuing year: *President,* Dr. George E. Smith, Dunkirk; *First Vice-President,* Dr. J. W. Morris, Jamestown; *Second Vice-President,* Dr. M. S. Coxe, Dunkirk; *Secretary,* Dr. W. J. Sullivan, Dunkirk; *Treasurer,* Dr. Lester D. Bowman, Jamestown; *Censors,* Dr. A. Wilson Dods and Dr. N. G. Richmond, Fredonia.

THE ACADEMY OF MEDICINE OF CLEVELAND, OHIO, at its annual meeting held Dec. 16, 1921, elected the following officers for the ensuing year: *President-Elect* for 1923, Dr. Clyde L. Cummer; *Vice-Presidents,* Dr. C. W. Stone; *Trustees,* Dr. George F. Thomas and Dr. S. J. Webster; *Executive Secretary,* Guy M. Wells.

THE SETON HOSPITAL, CINCINNATI, at its meeting held Dec. 8, 1921, elected the following staff officers: *President,* Dr. Carroll DeCourcy; *Vice-President,* Dr. Edward Kennedy; *Secretary-Treasurer,* Dr. Joseph DeCourcy.

THE PENNSYLVANIA HOSPITALS ASSOCIATION, at its annual meeting held in Harrisburg, Dec. 7, 1921, elected the following officers for the ensuing year: *President,* Dr. Daniel D. Test, Philadelphia; *First Vice-President,* Dr. J. C. Biddle, Ashland; *Second Vice-President,* Col. J. H. Rigger, Pittsburgh; *Treasurer,* Dr. Elmer E. Matthews, Altoona.

THE NATIONAL SOCIETY FOR THE PROMOTION OF OCCUPATIONAL THERAPY, at its fifth annual meeting held in Baltimore, Md., Oct. 20-22, 1921, elected the following officers for the ensuing year: *President,* Dr. H. J. Hall; *Vice-President,* Dr. G. Canby Robinson; *Secretary-Treasurer,* Mrs. Eleanor Clark Slagle; *Chairman of Committees: Finance,* Miss Marion R. Taber; *Publicity and Publication,* Dr. W. R. Dunton, Jr.; *Research and Efficiency,* Mrs. T. B. Kidner; *Installations and Advice,* Mrs. E. C. Slagle; *Teaching Methods,* Miss Ruth Wigglesworth; *Members of the Board of Managers,* Mrs. Carl Henry Davis and Mrs. C. J. Sullivan.

THE MEDICAL SOCIETY OF THE DISTRICT OF COLUMBIA, at its recent annual meeting held in Washington, D. C., elected the following officers for the ensuing year: *President,* Dr. A. W. Boswell; *First Vice-President,* Dr. William H. Hough; *Second Vice-President,* Dr. Prentiss Willson; *Corresponding Secretary,* Dr. J. Russell Verbrycke; *Recording Secretary,* Dr. Coursen B. Conklin; *Treasurer,* Dr. E. G. Seibert.

THE SEABOARD MEDICAL SOCIETY, at its meeting in Norfolk, Va., Dec. 8, 1921, elected the following officers for the ensuing year: *President,* Dr. Joseph L. Spruill, Sanatorium, N. C.; *First Vice-President,* Dr. Joseph T. Bruxton, Newport News; *Second Vice-President,* Dr. W. E. Warren, Williamston, N. C.; *Third Vice-President,* Dr. Cora Z. Corpening, Suffolk; *Fourth Vice-President,* Dr. F. T. Gates, Manteo, N. C.; *Treasurer,* Dr. George A. Caton, Newbern, N. C. (re-elected); *Secretary,* Dr. Clarence Porter Jones, Newport News (re-elected).

THE NEW YORK STATE SOCIETY OF INDUSTRIAL MEDICINE, at its first annual meeting held in Syracuse, Dec. 7, elected the following officers for the ensuing year: *President,* Dr. T. G. Smith, Schenectady; *First Vice-President,* Dr. C. H. Weston, New York City; *Second Vice-President,* Dr. R. W. Chaffee, Syracuse; *Secretary,* Dr. Myer Bloom, Binghamton; *Treasurer,* Dr. S. M. Slater, Rochester.

THE COVINGTON COUNTY (ALA.) MEDICAL SOCIETY, at its meeting held in Mobile, Dec. 6, 1921, elected the following officers for the ensuing year: *President,* Dr. F. Young, Florala; *Vice-President,* Dr. B. C. Stewart, Opp; *Secretary-Treasurer,* Dr. L. E. Broughton, Andalusia.

THE WALKER COUNTY (ALA.) MEDICAL SOCIETY, at its regular meeting in Jasper, Dec. 10, 1921, elected the following officers for the ensuing year: *President,* Dr. J. A. Goodwin, Jasper; *Vice-President,* Dr. G. S. Gilder, Carbon Hill; *Secretary,* Dr. J. F. Alexander, Jasper; *Censor,* Dr. W. M. Cunningham, Corona; *County Physician,* Dr. A. M. Stovall, Jasper.

THE SOMERVILLE (MASS.) MEDICAL SOCIETY, at its annual meeting held Dec. 8, 1921, elected the following officers for the ensuing year: *President,*

Dr. W. D. Ruston; *Vice-President*, Dr. Eugene L. Maguire; *Secretary-Treasurer*, Dr. E. H. Robbins.

THE HILLSBOROUGH COUNTY (FLA.) MEDICAL SOCIETY, at its annual meeting held in Tampa, Dec. 6, 1921, elected the following officers for the ensuing year: *President*, Dr. L. J. Efird; *Vice-President*, Dr. S. F. Adamo; *Secretary*, Dr. C. R. Marney; *Treasurer*, Dr. J. C. Chandler; *Censor*, Dr. E. F. Carter.

THE RUTHERFORD COUNTY MEDICAL ASSOCIATION, at its annual meeting held in Murfreesboro, Tenn., Dec. 8, elected the following officers for the ensuing year: *President*, Dr. A. N. Gordon; *Vice-President*, Dr. J. C. Overall; *Secretary-Treasurer*, Dr. J. A. Scott.

THE DOUGLAS COUNTY MEDICAL SOCIETY, at its annual meeting held in Superior, Wis., Dec. 7, 1921, elected the following officers for the ensuing year: *President*, Dr. T. H. Shastid; *Vice-President*, Dr. H. L. Sarvela; *Secretary-Treasurer*, Dr. F. J. Broghammer.

Obituary Notes.—Dr. HOWARD B. CROSS of the Rockefeller Institute of Medical Research, New York, who sailed for Vera Cruz on Nov. 23, 1921, to take charge of the institute's laboratories in that city, established to carry on the fight against yellow fever, succumbed to the disease on Dec. 27, at the age of thirty-two years. He was graduated from Oklahoma University School of Medicine, and was a graduate student of Chicago and Johns Hopkins Universities. In June, 1921, he was awarded the degree of doctor of philosophy by Johns Hopkins University. In making the announcement of Dr. Cross' death Dr. Simon Flexner said: "Dr. Cross gave his life willingly in order that one of the great plagues of humanity might be overcome and destroyed. By his death the science of bacteriology has lost an able, conscientious and devoted worker and the world a brave and generous spirit."

Dr. A. WARREN PENNIMAN died of angina pectoris at his home in Berkeley, Cal., on Dec. 15, at the age of sixty-two years. He was graduated from the University of Vermont College of Medicine in 1889.

Dr. RICHARD B. CUMMING of Wayne, Mich., a graduate of New York University Medical College in 1885, died on Dec. 20, at the age of sixty-three years.

Dr. ALEXANDER DRILL of Princeton, Wis., a graduate of the Marquette School of Medicine in 1916, was instantly killed in an automobile accident in Milwaukee, Wis., on Dec. 11. Dr. Drill, who served in the Medical Corps of the Army during the World War, was twenty-six years of age.

Dr. JOHN S. EVANS of Brookfield, Mo., a graduate of the Missouri Medical College, St. Louis, in 1890, died on Dec. 21, at the age of fifty-six years.

Dr. ALBERT VAN SICKLE of Brooklyn, N. Y., died of heart disease at his home on Dec. 27, at the age of forty-nine years. He was graduated from the College of Physicians and Surgeons, Columbia University, in 1896.

Dr. SAMUEL RUTHERFORD OLIPHANT of New York City and Mount Vernon, N. Y., died in New Orleans, La., on Dec. 26. He was formerly a member of the Mount Vernon Board of Health and of staffs of the Mount Vernon, Demilt and Post-Graduate Hospitals.

Dr. T. J. WHITNEY, a retired physician of Jamestown, N. Y., who had practised medicine for over fifty years, died on Dec. 24, at the age of seventy-nine years.

Dr. ROBERT CHILDS PATTERSON was shot and instantly killed in his office in Saranac Lake, N. Y., on December 244, by a mentally deranged ex-service man. He was graduated from McGill University Faculty of Medicine, Montreal, Can., in 1902. He was a fellow of the American Medical Association and a member of the American Climatological and Clinical Association, the American Pathological and Bacteriological Society, and the National Tuberculosis Association. Dr. Patterson had been connected with the tuberculosis work at Saranac for twelve years. He was forty-three years of age.

Dr. HARRY S. MARTIN of Spokane, Wash., a graduate of the Victoria University Medical Department in 1884, died on December 11, at the age of sixty-seven years.

Obituary.

WESLEY GROVE VINCENT, M. D., F. A. C. S.

NEW YORK.

Dr. WESLEY GROVE VINCENT of this city died suddenly on Tuesday evening while performing a minor operation in his office. The cause of his death was heart disease, a malady which has killed several prominent physicians of this city in the past year. He was born in Oak Bluffs, Mass., in 1871, and received his arts degree from Yale University in 1896 and his medical degree from the same institution in 1900. He was assistant surgeon to the New York Post-Graduate Hospital and professor of surgery in the Post-Graduate Medical School, and was a member of the Post-Graduate Alumni Association, the New York Academy of Medicine, the New York County and State Medical Societies, and the American Medical Association.

Dr. Vincent was a man of superior education, cultured, an agreeable companion, a faithful friend, and a surgeon of excellent judgment and fine technique. For many years he had been a valued member of the editorial staff of this journal. His death will be deeply felt as a personal loss by all his associates.

Correspondence.

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, December 17, 1921.

The Causation of Rickets.—The question of the causation of rickets is by no means settled. In fact, in this country there is as much confusion concerning its etiology as there ever was. Perhaps the majority of investigators do not now recognize rickets as a deficiency disease in the same category as beri-beri and scurvy and, perhaps, pellagra. Some there are who even deny that diet plays any particular part in bringing about this condition, certainly, they say, not the predominant part. Prof. Noel Paton and Dr. Leonard Findlay of Glasgow and Dr. Dick of London are the most thoroughgoing exponents of the theory

that rickets is caused, if not entirely, at least mainly by bad environment, lack of fresh air and exercise, and by living under insanitary and unhygienic conditions. Prof. Noel Paton and Mr. A. Watson a few months ago conducted a series of experiments with puppies to test the validity of their views and from the results obtained concluded that diet played but a very subordinate rôle in producing lime starvation, and that, therefore, the conclusions arrived at by those responsible for a report on the subject issued by the Medical Research Council to the effect that rickets was essentially a dietetic disease, chiefly due to the lack of the fat soluble vitamine A were incorrect. Since then, indeed only a few weeks ago, another report got up by Prof. Mellanby has been published by the Medical Research Council, in which some of the statements made in the former report are considerably modified. Much less stress is now laid upon the fat soluble vitamine A as the principal cause of rickets, although the vitamine is still regarded as the most important factor. However, despite the views of the school headed by Noel Paton, most authorities continue to consider rickets a dietetic disease, but not in the narrow sense conceived by those who hold that the fat soluble vitamine A occupies a similar position to that of the anti-scorbutic vitamine in causing scurvy. Hess and Unger, as the result of their investigations, than which no more thorough were ever carried out, stated that rickets was assuredly a dietetic disease, although the fat soluble vitamine A did not deserve the prominent position attributed to it by many observers. Harriette Chick and colleagues, working in Vienna, affirmed that they were firmly of the opinion that it was a dietetic disease, the result of malnutrition, because in Vienna the hygienic conditions were satisfactory, or at any rate they would not explain the physical deterioration among children which was evident on all sides. It was a hunger disease which might exhibit itself in its most advanced stages as osteomalacia. Of all the opinions so freely expressed of late, with regard to the causation of rickets, none appeals to common sense and reason with greater force than those set forth by Dr. Eric Pritchard. His picturesque suggestion, if such an adjective is applicable when referring to a disease of rickets, is briefly that in rickets, calcium, "available base," is withheld from its normal function of developing bone, because it becomes more urgently required to neutralize acid products of incomplete oxidation. The cheaper bases are so much called upon that they become depleted and then the more expensive bases, as calcium and iron, are pressed into service. The withdrawal of a considerable amount from bone formation results in an insufficiency of lime in the bone and, consequently, rickets. Although the hydrogen-ion concentration of the blood has been shown to be normal in rickets, it is argued that a compensated acidosis is present, in so far that there is a lowering of the alkaline reserve of the organism. Pritchard has pointed out that various causes may lead to acidosis, malnutrition, defective hygiene, infection, indigestion, vitamine deficiency, ill-regulated food balance, disordered metabolism, and, as Sir Arbuthnot Lane is constantly insisting, intestinal stasis. Acidosis, of course, does not always manifest itself in the form of rickets, but is likely to do so in infants and young children in which the soil is favorable. Another point upon which Pritchard lays stress is that excess of feeding, or rather relative excess of feeding, leads more frequently than insufficiency of food. Dr. Amy Hodgson, writing in the *Lancet*, Nov. 5, last, and whose investigations seem to lend support to Pritchard's views, declares that a careful study of work on the calcium metabolism in rickets reveals nothing to negative Pritchard's theory.

Tuberculosis in Dublin.—The chief tuberculosis officer for Dublin, Dr. P. J. Murray, has recently issued his report for the year 1920. Morbidity from tuberculosis in Dublin during the past six years has diminished steadily. In 1915 there were in the city 1,543 deaths due to the disease, of which number 1,193 were owing to pulmonary tuberculosis. The numbers decreased every year until in 1920 they had fallen to 820 and 615, respectively. The scheme at present embraces (1) a dispensary; (2) a sanatorium, and (3) a hospital for chronic or advanced cases. There are also arrangements for treating the various forms of surgical tuberculosis in the city hospitals, and subsequently, if necessary, in convalescent homes. Dr. Murray is in favor of the provision of an institution for the treatment of children suffering from pulmonary tuberculosis. He holds the view that the topographical and climatic conditions of Dublin have little influence on the incidence of the disease, which is greatly more influenced by the conditions under which the poorer inhabitants are obliged to live. He has found domiciliary treatment of less value than institutional because of the deplorable housing conditions of many of the working people, conditions which render any attempt at isolation of no avail.

Lead Poisoning and Industrial Hygiene.—At the Royal Institute of Public Health, Sir Kenneth Goadby gave recently the last of a course of lectures on "Problems of Public Health in Relation to Industrial Hygiene." He took lead poisoning as his subject. He said that lead workers, as a rule, did not show a high phthisis rate, while house painters showed a slightly exaggerated rate, probably owing to the fumes of turpentine they inhale. No man could inhale more than two milligrams of lead per day without danger. Lead entered the body in the form of dust, and the solution of the trouble would be the devising of mechanical methods to keep the dust away from the worker.

Obituary.—Sir Arthur Pearson, well known the world over as a business man and a philanthropist, died under peculiarly distressing circumstances at the age of 55. Blind himself for several years, his name will live as one who taught the blind not to consider blindness an affliction and as a handicap to be battled with and overcome. His death, indeed, was an indirect consequence of his proud and stern self-reliance. One of his proudest boasts was that even in the small affairs of daily life, if his tie were well arranged and his shave well done, he owed it not to a valet but

to his own hands. He was in the custom of going to his bath alone and he met his death in a curiously pathetic manner. He was getting into his bath when he slipped and fell and struck his head with so great force that he became unconscious and, when in this condition, was drowned in the water of his bath. He need not have died, and he would not have died, if he had not insisted on absolute reliance on himself. He founded the Blinded Sailors' and Soldiers' Hospital at St. Dunstan's in Regent's Park, London, and this was one of the most successful of all the institutions for the relief of war disability. The Fresh Air Fund, established in connection with *Pearson's Weekly*, a magazine founded and owned by him, was the means of giving a very large number of town and slum children a holiday in the country.

Progress of Medical Science.

Boston Medical and Surgical Journal

December 22, 1921, clxxxv, 25.

1. Dedication Exercises of the Oscar C. Tugo Circle in Memory of the First Enlisted Man in the American Expeditionary Force to Be Killed in the Great War. Addresses by Surgeon-General Merritte W. Ireland, Hon. James Jackson, and General Edwards.
2. Review of Classification of Double Monsters, with Report of a Case. Winifred Grant.
3. Post-Typhoid Chondritis of Ribs: Two Cases: Typhoid Bacillus. Frederic J. Cotton.
4. Vulvovaginitis. A. K. Paine.

3. Post-Typhoid Chondritis of Ribs: Two Cases: Typhoid Bacillus.—Frederic J. Cotton describes the case of a man, 42 years of age, who, following a severe attack of typhoid fever with relapse, developed a swelling over the fifth costal cartilage left of the sternum. Aspiration of the tumor yielded pus which on culture showed the *B. typhosus*. The tumor was excised and the cavity cauterized with carbolic acid followed by alcohol. In spite of persistent and efficient disinfection the Eberth bacillus persisted in the wound for four months, finally necessitating a second operation. The sinus was excised and all cartilage and perichondrium removed from the sternum to the end of the rib. The would was left wide open and allowed to heal by second intention. The case is of interest because of the dogged persistence of the Eberth bacillus and because it is an absolutely clean-cut case of infection in a small area deeply within the rib cartilage, manifesting itself outside only after a perforation and the formation of a secondary abscess. The second patient was also a man, 42 years of age, who on admission to the hospital because of a painful swelling in the left chest, gave a history of typhoid fever five months before, complicated with pneumonia and "pleurisy." After cleaning out and disinfecting this abscess there was failure to close as in the first case. In order to clear up the infection, which was shown to be due to typhoid bacillus, it was probable that removal of the whole cartilage, as was done in the first case, or the progressive removal of layer after layer with a carbolic disinfection for each layer, and a pressure dressing at the end of all, might still be necessary. This was a case, not of infection within the rib-cartilage, but in the perichondrium or thereabouts. These relatively common typhoidal rib-cartilage infections often subside, but always they are slow. In one instance coming under the writer's observation there were abscesses in both tibiæ which did not come to operation until seven years after the typhoid fever. In this case a pure *B. typhosus* culture was obtained from one tibia.

Vulvovaginitis.—A. K. Paine, in a study of 91 cases of this condition in children treated in the special clinic for gonorrhea in women conducted by the Boston Dispensary, reaches conclusions somewhat as follows: (1) That probably less than 10 per cent. of all the cases of vulvovaginitis in children are caused by the gonococcus of Neisser. (2) That of the remainder, about one-half (essentially "epidemic" in type, the numerous cases occurring simultaneously in institutions, schools, or family groups) is caused by mucus membrane infecting organisms such as are factors in the production of common colds, nasal infections, conjunctivitis, and the like. (3) That the remaining cases are about equally divided etiologically between those caused by masturbation and those caused by flagrant disregard of the habits of cleanliness. (4) That the duration of the infection (including the rare but definite gonorrheal type) is relatively short, provided always that a causative factor in the nature of some irritation is not continuously active or that irritation is not supplanted by the greater irritation of an "active treatment." (5) That the term "vulvovaginitis" is not accurately descriptive inasmuch as the vagina is rarely, at least extensively, involved, unless vaginal treatment has been employed. (6) That the cardinal principle of treatment should be cleanliness secured without in itself producing mechanical or chemical irritation. Segregation of isolation of these vulvitis cases is not advised except as better treatment may be secured in the early part of the affection, for if epidemic vulvitis represents something in the nature of an autoinfection from infected nasal secretions, obviously the case to case infection is via the latter, and occurring probably before the vulvitis as an individual sequela appears, segregation becomes unnecessary because too late.

New York Medical Journal

December 21, 1921, cxiv, 12.

1. The Man Galen and His Times. Jonathan Wright.
2. A Consideration of Obscure Mastoiditis. S. MacCuen Smith.
3. Surgical Endothermy in Accessible Malignancy. George A. Wyeth.
4. Preliminary Communication Regarding Steinach's Method of Rejuvenation. Harry Benjamin.
5. The Restoration of Hand Injuries by Plastic Surgery. Joseph E. Fuld.
6. Metastatic Infectious Vertebral Arthritis from Foci in Tonsil and Left Antrum of Highmore. Ellis M. Schwartz.
7. Inflammatory Discharges from the Lower Female Genital Tract. Thomas H. Cherry.
8. Lethargic Encephalitis. Rufus S. Reeves.
9. Rheumatism and Allied Affections. Albert C. Geyser.
10. Acute Yellow Atrophy of the Liver Complicating Acute Appendicitis. Moses Behrend.
11. The Prevention of Venereal Diseases. Joseph Broadman.
12. Vitiligo and Its Relationship to Syphilis. Charles Greene Cumston.
13. Venereal Disease: A Public Peril. William Renwick Riddell.
14. A Solution of Sodium Iodide for Use in Urological and *X*-Ray Studies. Maximilian Stern and I. Sidney Ritter.

4. Preliminary Communication Regarding Steinach's Method of Rejuvenation.—Harry Benjamin, having visited Steinach's clinic, finds on his return to this country that the greatest errors exist regarding this method. It is frequently confused with gland transplantation, for instance of the monkey gland and with all forms of gland treatments, and unfortunately has been deprived of the scientific seriousness which it nevertheless deserves. The point that so far has not been brought out with necessary clearness is, that by the Steinach operation the patient is given a more or less massive and continuous dose of his own gonadal hormone instead of the hormone of another human being or a monkey. Whenever the endocrinologist would prescribe a gonadal preparation this operation in one of its forms would theoretically be indicated. The effects following the operation have to be explained by the development of the gonadal hormone and (this is the most important point) its influence on all other glands with an internal secretion. The operation is therefore a treatment for all symptoms due to senility such as arteriosclerosis, hypertrophy of the prostate, eunuchoidism, mental depression and cases of dementia praecox where gonadel insufficiency is suspected to be the cause. The results that are obtained in cases of senility, especially premature senility, are so striking and remarkable that they may most accurately be described as rejuvenation. The theory of vasoligature is that it causes atrophy of the spermatogenetic apparatus of the tests—an atrophy from pressure and inactivity. The interstitial tissue, the hormone bearing apparatus, takes its place by way of hypertrophy, and this hypertrophy is accomplished by those clinical events which equal more or less a rejuvenation. The

success or failure of the operation depends not only upon the ability of the puberty gland to renew or increase activity, but also upon the response that the whole endocrinological system of the patient will give to the renewed output of gonadal hormone. After citing a number of cases, the writer expresses the opinion that on the same principle a treatment for women is also possible, not by a surgical procedure, but by the use of *x*-rays in such a way that the sensitive generative tissue of the ovary is destroyed by properly selected doses and this would cause hypertrophy of the more resistant cells that form the ovarian hormone. Many gynecologists have observed that women who were treated with *x*-ray for fibromyomata of the uterus, and other conditions, showed such remarkable general improvements that they were described as new youth. The success was ascribed to cure or improvement of the disease, but in the light of Steinach's discovery they deserve a different interpretation.

8, **Clinical Studies of Lethargic Encephalitis.**—Rufus S. Reeves reports in detail six cases of lethargic encephalitis, from which he concludes that the protein character of the symptoms of lethargic encephalitis makes the diagnosis in the atypical cases very difficult. Laboratory and clinical findings make it evident that mild and abortive cases and carriers play an important part in the spread, especially during an epidemic. The four most prominent symptoms are eye conditions, lethargy, fever, and atypical spinal fluid. The filterable virus has a selective action on the brain stem. Definite symptoms of cerebral disturbance are seen in patients one year after the disease. Lethargic encephalitis must be differentiated from syphilitic meningitis, in which the positive findings are fluid under pressure, positive Wassermann, positive Kernig's sign, some rigidity of the muscles of the neck and a patient in continuous stupor, who, when aroused, cannot understand what is said to him; from tuberculous meningitis, where there is also fluid under pressure and containing many lymphocytes and tubercle bacilli, positive Kernig's, some rigidity of the muscles of the neck, tuberculous history, physical findings, and dissociation between temperature and pulse; from anterior poliomyelitis in which the spinal fluid is cloudy, contains many polymorphonuclear and eosiniphile leucocytes and the meningococcus, positive Kernig's, stiffness of the muscles of the neck, exaggerated patellar reflexes, positive Babinski and ankle clonus; from cerebral abscess, in which the eye examination shows choked disc, the leucocyte count is high, there is a marked pleocyte count and at times cloudy spinal fluid, hectic temperature, usual history of primary focus and projectile vomiting; from brain tumor, in which there is usually a history of slow onset with headache and vomiting.

Acute Yellow Atrophy of the Liver Complicating Acute Appendicitis.—Moses Behrend points out that yellow atrophy of the liver is a rare disease, many clinicians of large experience never having observed a case. In all, five cases have come under his observation. The symptoms were practically alike in all of them. The symptoms come on rather stealthily. There is slight gastrointestinal disturbance, soon followed by vomiting of a mild character. Malaise and the lack of a desire to take food are noted, followed almost immediately by a slight jaundice, without pain, which is very characteristic because of the absence of pain and the less intense yellowish discoloration seen in obstruction of the bile passages. Delirium usually ensues and portends a fatal termination. The case reported is that of a girl, 16 years of age, who at the time of admission to the hospital, had been sick for two days, suffering from all the cardinal symptoms of acute appendicitis. At operation on the following day, on account of acute bronchitis, chloroform anesthesia was used. The appendix was gangrenous and the pelvis contained pus. The abdomen was drained. For the first twenty-four hours the temperature ran a normal course. The following morning the skin was slightly jaundiced, there was a rise of temperature, the pulse was fairly good, though a little rapid. The patient vomited a little during the day, became delirious, and died on the morning of the third day. The diagnosis of acute yellow atrophy of the liver was confirmed at autopsy. The liver was pale yellow in color, not especially smaller in size. Two factors could have caused the fatal complication, namely, a late poisoning due to the chloroform anesthesia or the serious appendiceal infection. The cause of the complication seems to point rather strongly to the anesthetic.

Journal of the American Medical Association

December 24, 1921, lxxvii, 26.

1. A Personal Appreciation of Sir William Osler. J. M. T. Finney.
2. Telangiectatic Splenomegaly. Douglas Symmers.
3. The Clean Inunction Treatment of Syphilis with Mercury: Preliminary Report. H. N. Cole, A. J. Gericke, and Torald Sollmann.
4. The Existence of Gastric Ulcer with Tabes Dorsalis. Burrill B. Crohn.
5. Fractures of the Skull: Diagnosis and Prognostic Features. J. W. Stewart.
6. Investigation on the Activities of Infective Hookworm Larvæ in the Soil: Preliminary Report. William W. Cort, Donald L. Augustine, and George C. Payne.
7. Nonsurgical Drainage of the Biliary Tract: Its Usefulness, Diagnostically and Therapeutically. Frank Smithies, Clyde Karshner, and Richard Bartlett Oleson.
8. Chronic Ulcerative Colitis. Frank C. Yeomans.
9. Hernia Reduced "en Bloc." E. L. Eliason.
10. Pericarditis with Effusion: A Clinical Study of Twenty-three Cases. Charles Spencer Williamson.
11. A Note on the Venereal Spirochetosis of Rabbits: A New Technique for Staining *Treponema Pallidum*. Hideyo Noguchi.

2. Telangiectatic Splenomegaly.—Douglas Symmers describes three cases in which the only common clinical factors are anemia with leucopenia and massive enlargement of the spleen. He draws the deduction that there is a systemic disease characterized by extensive proliferation of the endothelium of capillaries, particularly involving organs that belong to the hematopoietic group—the spleen, bone marrow, liver and lymph nodes. The most striking feature of the disease is found in the massive enlargement of the spleen, due to profuse proliferation of the lining endothelium of its smaller vascular channels, with the production of new capillaries and the subsequent formation of telangiectases, identical or related histological changes being apparent in other organs of the hematopoietic system, and occasionally in organs beyond this system. In the spleen and lymph nodes the proliferative changes in the capillary endothelium appear to rise in vessels that are native to the part. In other instances the same sort of cells may be seen infiltrating and distending capillaries, notably in the skin, bone marrow and liver; but whether these cells are produced *in situ* is not apparent. The disease is neither frankly neoplastic nor strictly inflammatory, but presents features incident to both and, perhaps, is best included in that group which occupies a position intermediate between neoplasia and inflammation, taking its place, in this regard, with Hodgkin's diseases, mycosis fungoides, Cohnheim's pseudoleucemia, Sternberg's leucocarcoma, Gaucher's splenomegaly, and the like.

3. The Clean Inunction Treatment of Syphilis with Mercury.—H. N. Cole, A. J. Gericke, and Thorald Sollmann present a preliminary clinical study on the basis of which they draw the following conclusions: (1) In treating syphilis by means of mercurial inunctions, probably the only mercury absorbed is that part of the mercurial ointment which is rubbed into the hair follicles, and entrances of the sebaceous and sweat glands. Hence, all superfluous ointment remaining on the skin may be cleansed off immediately after the inunction without lessening the mercurial effect. (2) From forty-four clinical cases of syphilis treated by this technic, we feel that we have been able to prove this clinically. (3) As a result of our findings we feel that, in the future, mercurial inunctions need not be discarded because of the unpleasant considerations in regard to their use, namely, uncleanliness, liability of discovery, and causing of a folliculitis. (4) Mercurial inunctions following the technic that we advise are to be recommended in the treatment of syphilis as a distinct advance in the therapy of this disease. The technique employed was as follows: Four grams of the official Unguentum Hydrargyi U. S. P. was rubbed in for thirty minutes. At the end of this time all mercury remaining was thoroughly removed from the skin by the free use of benzine and cotton. With these patients a different spot was used each night for at

least six nights in order to prevent chances of irritation of the skin and so that the criticism could not be raised that mercury was absorbed through the irritated skin.

6. **Investigation on the Activities of Infective Hookworm Larvæ in the Soil: Preliminary Report.**—William W. Cort, Donald L. Augustine, and George C. Payne have conducted this study, which brings out facts quite at variance with present ideas in regard to the life of infective hookworm larvæ under natural conditions. They have found in both their field and laboratory studies that it is a common occurrence for mature hookworms to lose their sheaths while living in the soil, and to continue their lives in the unsheathed condition. In regard to the migrations of infective hookworm larvæ in the soil the opinion has become current that they actively move out of the place of development and that a small center may give rise to extensive soil infestation. These observations indicate that as far as their own activities are concerned, the infective hookworm larvæ are difinitely limited to the place of development. It is generally believed that infective hookworm larvæ may live in the soil for periods of more than a year. These observations both from field and laboratory experiments show that under tropical condition hookworm larvæ in the soil die out quickly, and that an area even of very heavy soil infestation will soon become safe after the elimination of soil pollution.

7. **Nonsurgical Drainage of the Biliary Tract: Its Usefulness, Diagnostically and Therapeutically.**—Frank Smithies, Clyde Karshner, and Richard Bartlett Oleson present certain facts regarding 679 drainages or the attempted carrying through of such, in 309 individuals. There were 169 females and 140 males. The youngest patient was 6 years of age, the oldest 69. There were 19 patients experiencing acute or subacute biliary tract disease; the remaining patients were chronic sufferers who appeared for relief of various types of digestive upsets. While the writers are still undecided in respect to many points, they feel that they have made sufficient advance to warrant the statement that they now regard metapyloric biliary tract drainage as being the most important single procedure available for the elucidation of gall tract and liver anomalies. The following indications are suggested as indicating gall tract disease as revealed by metapyloric drainage: (1) No appearance of bile-stained fluid in duodenal contents, after repeated magnesium sulphate solution stimuli. (2) A quantity of common duct bile greater than 25 c.c., in which bile are found abnormal sediments—blood, pus, increased cholesterin, pigment crystals, calculi, epithelium. mucus, and bacteria. In this series of cases when biliary tract disease was present the average quantity of common duct bile was 49 c.c. Intermittence of discharge of common duct bile on repeated intraduodenal stimuli is of useful import. (3) Absence of gall-bladder bile following repeated magnesium sulphate stimuli indicates some break in the neuromuscular reflex, cystic duct obstruction from whatever cause, gall-bladder atony or overdistention, inspissated of calcareous gall-bladder contents, gall-bladder tumor or benign or malignant adhesions involving the gall-bladder duct. (4) Securing gall-bladder bile in quantity greater than 75 c.c. or less than 20 c.c. of different types on repeated intraduodenal stimuli; gall-bladder bile intermittently discharged, especially when in the specimen there are abnormal sediments. Dark colored bile specimens do not necessarily come from diseased gall-bladders; neither does it follow that bile not dark colored is free from anomalies and does not come from gall-bladders. Dark color indicates commonly stagnation on some part of the biliary tree from the liver lobule to the papilla of Vater, or abnormal function on the part of the liver itself due to local or systemic upsets. It has been proven by the authors in their practice that metapyloric biliary drainage has a place in the treatment of affections of the biliary tract. In ailments which are of recent inception or where pathological damage precludes hope of successful surgery, by preventing bile stasis, by attempting to eradicate infections and by striving to improve heptic functions, the procedure is of service. It is a mistake, however, to attempt to relieve obstructive lesions, known calculi, tumors and the like, when by surgical endeavor more logical and positive relief may be quickly brought about.

10. **A Note on the Venereal Spirochetosis of Rabbits: A New Technique for Staining Treponema Pallidum.**—Hideyo Noguchi has made observations on rabbits found among the normal stock of the Rockefeller Institute which presented spontaneous lesions of the anogenital region containing an organism resembling *Treponema pallidum*. More recently six rabbits just purchased in Pennsylvania were found to have similar lesions. The organisms found in these lesions are somewhat different from the *Treponema pallidum* and may be designated *Treponema cuniculi*. The staining properties of these two varieties of Treponema are similar. A new procedure has been worked out by Miss Evelyn B. Tilden in Noguchi's laboratory by which both *Treponema pallidum* and *Treponema cuniculi* can be stained very distinctly not only with Giemsa solution but also with basic dyes, such as gentian violet and fuchsin. The procedure promises to be of practical value in the routine diagnosis of syphilis, when the dark field is not available, because of its simplicity. A buffer solution containing formaldehyde (1 part of formaldehyde solution in 9 parts of phosphate buffer solution is used as fixative, the scraping or tissue emulsion being suspended in a small amount of the buffered formaldehyde solution and the mixture allowed to stand for at least five minutes (the longer the fixation the better the results; the organisms remain well preserved for at least two or three weeks). Thin films are made on clean slides, dried in the air, the film surface is flooded with a saturated alcoholic solution of gentian violet or fuchsin, or with Stirling's solution of gentian violet such as is used for Gram's stain, and the slide is almost immediately washed in running water and air dried.

The Lancet

December 3, 1921, ccl, 5127.

1. An Introduction to the Study of Aphasia. S. A. Kinnier Wilson.
2. Eclampsia and Its Incidence. R. H. Paramore.
3. Value and Comparison of Renal Efficiency Tests. John D. Comrie.
4. Twilight Sleep and the General Practitioner. Charles H. S. Horwitz.
5. Domiciliary Treatment of Bone and Joint Tubercle. W. C. Rivers.
6. A Note on Guelpa's Method in the Treatment of Gout and Glycosuria by Fasting and Purging. Henry Lunn.

1. **An introduction to the Study of Aphasia.**—S. A. Kinnier Wilson discusses the anatomical basis, the physiological and psychological mechanisms, and the clinical varieties of aphasia. He demonstrates that appreciable advantages are secured by regarding aphasia as part of a wider cerebral syndrome, namely, that of apraxia and agnosia. If aphasia is to be considered a disorder of symbolic thinking, it is important to grasp the fact that such disorder may reveal itself where no words, as such, come into the question at all. Yet unless some explanation is offered such as that provided by the conception of apraxia and agnosia, the limits of aphasia will be stretched unjustifiably. A patient who dresses himself wrongly or makes mistakes, or "short-circuits" in performing any act such as lighting his pipe, shows a disturbance which cannot by any legitimate mean be regarded as aphasia, but the disorder is certainly one of agnosia or apraxia. By the utilizations of these modern conceptions the way is paved for a more comprehensive insight into cerebral activities, both on the receptive and on the executive side.

2. **Eclampsia and Its Incidence.**—R. H. Paramore outlines a new conception of eclampsia, based on the previous conception that intraabdominal pressure is a vital force, dependent upon the body wall muscles, and fundamentally related with general, and more particularly, with visceral metabolism. Many considerations show that intraabdominal pressure is intimately related with general metabolism, and its increase in pregnancy has been demonstrated. Differences in the form of the abdomen, especially in evelopment of its muscular walls, and in the degree of its distension, indicate that differences occur in intraabdominal pressure at corresponding periods of pregnancy.

It is reasonable to suppose that the pressure, as pregnancy advances, becomes greater in strong muscular women than in those who are weak. It is in the cases of strong muscular women that the toxemia of pregnancy appears more commonly. It is to be expected that in primigravidæ greater pressures should occur, other things being equal, than in pregnant multiparæ; similarly it is obvious that tight lacing must cause greater pressures than in those who go loose. This latter fact affords an explanation of the frequency of ecalmpsia in unmarried pregnant women. There are other types the proneness of which to eclampsia is remarkable, namely, the cases of multiple pregnancy, hydramnios, concealed accidental hemorrhage and hydatidiform mole. These conditions have in common one factor, namely, that the size of the uterus is considerably larger than it should be. This increased size is a factor affecting intraabdominal pressure. Many considerations show that intraabdominal pressure is intimately related with general metabolism. Intraabdominal pressure also interferes with the blood flow to the liver and kidneys. The blood reaching the convoluted tubules of the kidneys has first to traverse the capillary networks forming the glomeruli, with the possibility of escape by way of the medulla. Clearly if the blood is obstructed by the cortex and escapes by the medulla, the selectiveness of the necrosis in eclampsia is explained. Similarly if the blood flow through the liver is sufficiently impaired, liver inanition and patchy necrosis becomes intelligible. The question is whether an obstruction due to pressure and sufficient to cause such changes actually occurs in these secondary capillary areas. The writer believes that a study of intraabdominal pressure and of the incidence of eclampsia warrant the acceptance of this idea.

3. Value and Comparison of Renal Efficiency Tests.—John D. Comrie finds that the combination of the estimation of blood-urea, of urea concentration in the urine, and of phenolsulphonephthalein excretion, gives reliable information as to the functional condition of the kidneys. The blood-urea estimation should form a preliminary investigation. If it rises above 50 mg. per 100 c.c. of blood the condition is serious. If it is found to be persistently over 100 mg. recovery is not likely, and death will probably take place within a year. In uremia it may exceed 200 or 300 mg. before death. The blood-urea may be normal while a marked degree of renal impairment exists; but in such cases the prognosis is usually favorable. The blood pressure shows no constant relation to the amount of blood-urea; though when blood urea is permanently high the blood pressure is usually high. The phenolsulphonephthalein test, in the writer's experience, is the most valuable individual test. An excretion, which takes place chiefly in the first hour and which in two hours reaches 70 per cent., or over, gives a good prognosis so far as the kidney function is concerned. An excretion of 50 per cent. in two hours in either renal or cardiac cases is compatible with complete restoration of health. An excretion of about 30 per cent. is compatible with prolonged life though on a low plane of vitality. When the excretion does not rise above 20 per cent. in spite of treatment, death within a year may be expected. The urea-concentration in the urine test is simple, harmless, and gives valuable information. The amount fluctuates more in individual cases than does the phenolphthalein excretion. A urea-concentration of over 3.5 per cent. indicates a satisfactory renal function; over 2 per cent. it is compatible with a fair degree of health; if it persists below 2 per cent., in spite of treatment, it is unsatisfactory.

British Medical Journal

December 3, 1921, No. 3179.

1. A Lecture on Varicocele in the Female. W. E. Fothergill.
2. On Forecasting. A Contribution to the Prognosis of Some Anomalies of the Heart and of the Urine. W. P. S. Branson.
3. The Relation of Carcinoma to Infection. W. Ford Robertson.
4. The Pathology of Gastric and Duodenal Ulcer. Alexander G. Gibson.
5. On the Bone Graft. Marcus Mamourian.
6. General Anesthesia and the Atmosphere in the Operation Theater. J. Ross Mackenzie and G. H. Colt.
7. Decapsulation of the Kidneys in Bright's Disease. T. H. Sanderson-Wells.
8. The Pasteurization of the Milk Supply. S. G. Moore.

3. The Relation of Carcinoma to Infection.—W. Ford Robertson has developed certain culture methods by the aid of which he has been enabled to observe facts regarding the behavior of bacteria which, although new, have attracted little attention. One of these facts is that many bacteria that we regard as aerobes commonly assume, when their attack is prolonged, an anaerobic habit of growth, and can be cultivated only under anaerobic conditions. This applies, for example, to such important pathogenic species as *Micrococcus catarrhalis*, the gonococcus, *Streptococcus pyogenes*, *Streptococcus fecalis hemolyticus*, and several types of diphtheroid bacillus. If a bacterium of this kind establishes itself in an epithelial cell and multiplies, the cell may die on account of the toxic action that ensues. It is far from likely that in every instance the cell will succumb. One action of bacterial toxins on cells is to stimulate growth. It is possible that some types of bacteria, if established within an epithelial cell, would have chiefly this effect. With these facts and possibilities before him the hypothesis suggested itself to the author that the rods he has observed within cancer cells by means of the pallidum methylene violet method might be anaerobic bacteria that had established themselves within the epithelial cells, and that the continued proliferation was due to these bacteria. He has tested this hypothesis in various ways during the past two years and submits evidence to support it which he claims is, to put it mildly, sufficient to arrest attention. There is evidence to support the belief that there appears to be a race of anaerobic bacteria, comprising several species belonging to the large diphtheroid group or to the closely allied streptothrix group, which are capable of infecting epithelial cells and maintaining within them a parasitic existence. There are some rounded or oval bodies that may occasionally be seen in the cultures which cannot be called either bacilli or micrococci, but which are not incompatible with the polymorphism of some of the higher bacteria, especially the streptothrices. It is probable that bacteria of other groups are capable of acting in the same way. If this is so cancer may have to be regarded as dependent upon a special mode of bacterial attack, rather than upon a specific infection. Invasion of the cell would appear to be effected, as a rule, by bacteria of comparatively vigorous growth and easy to cultivate, but when these bacteria adapt themselves to purely parasitic intracellular growth they become comparatively feeble and extremely difficult to grow in culture media. Tumors can be produced in mice by both the vigorous and the feebly-growing strains. Focal reactions can be obtained in some cases, success probably depending upon the vaccine having been prepared from the same species as that in the case. The possible diagnostic value of such reactions is a question which must be left for future investigation to determine.

7. Decapsulation of the Kidney in Bright's Disease.—T. H. Sanderson-Wells reviews the literature on this subject and reports a case in which this procedure has been successful at least for the time being. He states that the published cases demonstrate that success is possible even *in extremis*, and some remarkable complete recoveries are recorded. Although the physiological and pathological findings are adverse, the clinical results prove that from the patient's point of view the outcome is often satisfactory. The writer's patient is quite settled on this point. Moreover, he is probably characteristic of many in that though not completely cured and possibly doomed eventually to die of the disease, the operation has been justified by the result. The operation deserves consideration under two conditions: (1) As an emergency in eclampsia, uremia, suppression of urine, etc. The more desperate the extremity the more certainly it should be discussed, and cases have been snatched from apparently impending dissolution. (2) In chronic cases, when medical treatment has failed after a thorough trial. In both the above classes the heart and arteries should be reasonably sound, which probably means that most success will be obtained in the first half of life.

Book Reviews.

EYE, EAR, NOSE AND THROAT NURSING. By A. EDWARD DAVIS, A.M., M.D., Professor of Diseases of the Eye in the New York Post-Graduate Medical School and Hospital, and BEAMAN DOUGLASS, M.D., Professor of Diseases of the Nose and Throat in the New York Post-Graduate Medical School and Hospital. Second revised edition, with 32 illustrations. Price, $2.50. Philadelphia: F. A. Davis Company, 1920.

THOUGH primarily written for the use of nurses and students, this little book is of considerable value to those practitioners who are compelled to do their own nursing. It abounds in hints and points that are not to be found in any textbook, because they are considered as matters of fact and too elementary to dwell upon. Such little procedures as the proper instillation of eye drops, rapid and painless eversion of the upper lid, application of drops or solids to the lids, syringing an ear, douching the nasal chambers, etc., will be taken note of by the intelligent patient, and due credit or otherwise given to the physician. We find the authors' treatment of lime burns of the eye somewhat at variance with the present conception of such burns as propounded, for example, by Würdeman, who employs extensive douching with water, the first that comes to hand, picking and wiping out of the lime, later using ammonium chloride solution. On the subject of chalazion mention might be made of excision, an operation often to be preferred to curettage, especially in large growths. The authors' advice to keep the packing after an operation for deflected septum for 48 hours (p. 292) will be subscribed to by very few operators, most of whom remove it within 12 or the longest 24 hours. Our experience, and we believe that of most operators, does not substantiate another statement that "after tonsil operations sepsis is of extremely frequent occurrence;" with the modern methods of tonsillectomy we do not find it so.

DIE BEDEUTUNG DER VERSCHIEDENARTIGEN STRAHLEN FÜR DIE DIAGNOSE UND BEHANDLUNG DER TUBERKULOSE. Mit dem Robert Koch-Preis für Tuberkuloseforschung gekrönte Monographie. Von Dr. RUBEN GASSUL, früher am Berliner Universitätsinstitut für Krebsforschung. Mit 2 Kurven. Leipzig: Georg Thieme, 1921.

THIS booklet is practically a bibliographic review of the various radiations used in the diagnosis and treatment of tuberculosis as practised at the Berlin University Institute for the Tuberculous. The roentgen diagnosis of tuberculosis is briefly rehearsed, throughout which copious references to German investigators are presented. The second part outlines the prevalent German conception of radiations in the treatment of tuberculosis including the quicksilver quartz light, the x-ray, radium and mesothorium and finally the combination of two or more of these agencies. Two interesting charts are presented. The first shows seven groupings of tuberculosis—Incipient lung infiltration; long-standing lung infiltration; Areas of consolidation in the lung; small lung cavities; large lung cavities; miliary tuberculosis, and various forms of surgical tuberculosis. Four means of diagnosis are chartered. These are roentgen ray diagnosis, physical diagnostic methods, diagnosis through the use of tuberculin, and combined diagnostic methods. In incipient lung infiltration combined methods seem to give a greater number of correct diagnoses, the x-ray and physical diagnoses giving about an equal percentage of positive diagnoses though both are slightly less sensitive than the combined methods. This approximately is the case with the miliary tuberculosis and with various forms of surgical tuberculosis. For the other groupings doctored by this author the x-ray is charted as showing the greater percentage of correct diagnoses, combined methods slightly less, physical methods alone still less. For all types tuberculin diagnosis of tuberculosis is always less sensitive and generally more unsatisfactory than any of the three methods already discussed. The second chart deals with the various forms of ray therapy in which it is shown that for various types of tuberculosis (lung, laryngeal, urogenital, etc.) radium, surgical intervention and spontaneous healing are generally less effective than heliotherapy, roentgen ray, combined methods, and quartz light.

INFORME CORRESPONDIENTE AL AÑO DE 1920 que el Director de Sanidad Nacional Presenta al Ministro de Relaciones Interiores. Caracas: F. J. Camejo & Co., 1921.

THIS annual health report of Venezuela is a large quarto volume of nearly 400 pages. Among the individual sections are the reports of the sanitary engineers and physicians, the movement of epidemic and contagious diseases, inspection of pharmacies, inspection of schools, service of vaccination, inspection of laboratories, statistics, inspection of leper hospitals, financial report, service of publications, service of material and transportation, inspection of houses, inspection of markets, etc., service of disinfection and deratisation, inspection of drainage and garbage disposal, etc., etc..

MEDICAL ELECTRICITY, RÖNTGEN RAYS AND RADIUM. With a Practical Chapter on Phototherapy. By SINCLAIR TOUSEY, A.M., M.D., Consulting Surgeon to St. Bartholomew's Clinic, New York City. Third Edition. Thoroughly Revised. Price $10. Philadelphia and London: W. B. Saunders Co., 1921.

To those familiar with the earlier editions of this work no words are necessary to describe its excellence. To those who are not familiar with the work the advice may be given to become so. It is a most exhaustive treatise on all subjects comprised under the title, viz: Static electricity, dynamic electricity, physiological effects of electricity, electropathology, electrodiagnosis, ionization, electromagnets, electricity in diseases of the nervous system, high-frequency currents, phototherapy, fluoroscopy and radiography, roentgenotherapy, and radium. All these subjects are treated of in great detail and in a very instructive manner. The illustrations are numerous and well made. The book can be recommended as one of the best guides to the therapeutic employment of electricity and radioactivity that we have, second in practical utility only to actual experience.

PRACTICAL PSYCHOLOGY AND PSYCHIATRY. For Use in Training-Schools for Attendants and Nurses and in Medical Classes, and as a Ready Reference for the Practitioner. By C. B. BURR, M.D., Medical Director of Oak Grove Hosptal (Flint., Mich.) for Mental and Nervous Diseases; Member of the American Medico-Psychological Association, of the American Medical Association, of the American Neurological Association; Fellow of the American College of Physicians; Foreign Associate Member of Société Médico-Psychologique of Paris, etc. Fifth Edition, Revised and Enlarged, with Illustrations. Philadelphia: F. A. Davis Company, 1921.

FIFTH editions do not beg for encouragement. This little work of scarcely more than 250 pages continues to stand for the same high ideal, the same practicality, the same sound judgment in its specialty that it has always represented. The chapters on psychology and forms of insanity have been revised and new material added; likewise a new chapter on the prevention of insanity has been made a feature of this book. It amply fulfills its reason for success and at the same time is pleasurable reading.

A MANUAL OF SURGICAL ANATOMY. By CHARLES R. WHITTAKER, F.R.C.S. (Ed.), F.R.S.E., Senior Demonstrator of Anatomy, Surgeons' Hall, Edinburgh; Lecturer on Biology, Extra-Mural School of Medicine, Edinburgh; Examiner in Biology, Royal College of Surgeons, Edinburgh. Third Edition, revised and enlarged. Price $3.50. New York: William Wood and Co., 1921.

THIS is one of the smallest of the works on Surgical Anatomy; at the same time, it is certainly the most readable and will readily serve as an introduction to the larger (and drier) works on the subject. The author has been particularly happy in his choice of anatomical facts and in the various groupings; and the numerous tables, diagrams and illustrations all tend to make this little book one of unusual value to the student. Of course, the larger standard works will have to be studied later; but a perusal of the present volume will certainly smooth the path.

Society Reports.

SOUTHERN MEDICAL ASSOCIATION.

Fifteenth Annual Meeting, Held at Hot Springs, Arkansas, November 14, 15, 16, *and* 17, 1921.

THE PRESIDENT, DR. JERE L. CROOK OF JACKSON, TENNESSEE, IN THE CHAIR.

Early Diagnosis and Treatment of Joint Tuberculosis.—Dr. JOHN T. O'FARRALL of New Orleans said sufficient care was not taken in making a diagnosis in the average case of early joint tuberculosis. The average general practitioner and general surgeon were not fully awake to the importance of early and accurate diagnosis and treatment in such cases, nor were they fully conscious of their responsibility as related to the functional end result. The treatment of joint tuberculosis required not local treatment of the affected part alone, but rigid and long continued constitutional treatment. Protection and extension of tuberculous joints should last over a period not less than two years, especially as regards weight bearing. The promiscuous opening of tuberculous abscesses and haphazard curetting of sinuses was extremely bad surgery. The end result striven for should not be ankylosis, but a functioning joint. It was unfair to hope for such a result if weight bearing was allowed upon an actively diseased bony structure.

The Limits of Orthopedic Surgery.—Dr. EDWARD S. HATCH of New Orleans stated that a man who expected to specialize in orthopedic surgery should first spend several years in the general practice of medicine and should have a thorough surgical training. He should be very familiar with normal skiagraphic anatomy and should be well schooled in mechanics, in the details of manufacture of all types of deformity apparatus as well as the designing of such apparatus. He must be a mechanic, a surgeon, and a roentgenologist before he attempted to limit his work to orthopedic surgery, and, as Dr. Baer says, must have patience, perseverance, and optimism. The amount of borderline work that came to the orthopedic surgeon would be governed by his skill in handling the operative side, together with his accurate and careful work along mechanical lines that his orthopedic training had given him. The American Orthopedic Association at the meeting in 1920 adopted a resolution stating that the scope of orthopedic surgery should include the framework of the human body, the bones and joints and abnormalities of the motor apparatus. This would include: (1) Congenital and acquired deformities of the spine and extremities. (2) Infantile paralysis after the acute stage. (3) The deformities of adult paralysis. (4) Stiff ankylosed joints. (5) Torticollis. (6) Disabilities of joints, such as rupture of crucial ligaments, injuries to the semilunar cartilages, snapping hip, slipping patella, fractures, etc. The orthopedist would be consulted in severe and complicated fractures and in diseases in and about joints. In his orthopedic clinic advice was constantly being sought in compensation insurance injury cases by those who had received inadequate treatment from the insurance surgeons. These were usually fractures, sprains, and joint injuries, to which superficial treatment only had been given, and the patients realized that they were unable to resume their former occupations, though they had been discharged as cured by their doctor. Being unable to pay for service, they applied to the orthopedic clinic, because they had learned that the orthopedic treatment helped them to get back to their work earlier.

X-Ray Study of the Lumbosacral Spine.—Dr. ARCHER O'REILLY of St. Louis said that abnormalities and variations in the lumbosacral region were very common. In some cases, however, variations in a minor degree were due to distortions as a result of the position of the patient when the *x*-ray picture was made. Variations of the lumbosacral spine were not confined to patients with back symptoms, but were also seen in about 50 per cent. of persons who had never had back symptoms. It was probable that in these cases the spine was inherently weak, and that eventually backache or strain might develop. Irregularity at the lumbosacral articulation was very common, not only in persons suffering from backache, but also in those who had never had back symptoms, so that the surgeon, in cases of injury, must be very guarded in stating that there had been displacement or fracture as a result of the accident.

Operative Treatment of Certain Fractures.—Dr. EDWIN W. RYERSON of Chicago stated that Whitman's method in the treatment of fracture of the neck of the femur was simple and was followed by a high percentage of good results. It could rightfully be called an operative method, because it involved the actual reduction of the fracture, usually under an anesthetic. The technique should be perfectly understood by general practitioners, for they were the men who took care of most of the fractured hips. The patient was placed upon a pelvic support which had a perineal post. If this was not at hand, a folded sheet might be placed between the legs and tied to the head of the table. The legs were pulled upon by assistants or traction apparatus until they were of equal length, the operator lifting the trochanter upward at the same time. The leg was then rotated slightly inward. These maneuvers approximated the fractured surfaces of the bone. Both legs were then spread widely apart in abduction to the extreme limit possible. This brought the trochanter against the upper rim of the acetabulum and stabilized the fracture. A long plaster-of-Paris spica bandage was then applied over sufficient cotton padding with the leg held in firm abduction. The cast was worn for at least three months, and no weight bearing was allowed for eight or nine months longer. The patient was gotten out of bed as soon as possible and was encouraged to walk about on crutches. This method of treatment was applicable to the great majority of cases of fracture through the neck of the femur (intracapsular type), no matter how old or how fat the patient might be. The union might not be absolutely accurate from an anatomical viewpoint, but it was almost certain to be excellent from a functional standpoint. He believed that very few fractures would require open operation if they had had competent mechanical treatment, but that very few communities at present were provided with the requisite appliances and materials for the proper treatment of many of the common and disabling forms of fracture. All communities should be as well equipped for the treatment of fractured femurs as they were for the treatment of diphtheria or appendicitis.

Treatment of Fractures of Long Bones.—Dr. W. BARNETT OWEN of Louisville stated that the method of treating fractures which he wished to submit for consideration was one devised by the late Dr. H. H. Grant of Louisville, Kentucky, in 1915, and was known as the "gimlet fixation method." Personally, he had employed this method in eleven cases—two fractures of the humerus and nine of the femur. A mild infection occurred in one case of fracture of the femur. Operation was performed at the Louisville City Hospital, necessitating later the removal of a small sequestrum. Union of the bone was firm and subsequent function good. The patient was an acute alcoholic, had a four plus Wassermann (blood), and his general condition was exceedingly unfavorable when admitted to the hospital. The results in the other ten cases were entirely satisfactory—firm union, good position, and perfect function. This method of operation and fixation of the fragments appeared to be more simple than other plans suggested and was equally as efficient. The gimlet method afforded outside control of internal conditions. It was a simple and efficient method of maintaining reduction. Proper selection of suitable cases for treatment by this method was important. In no case should the patient be subjected to open operation if the fracture could be successfully treated by the closed method. Restoration of function was the point of prime importance in the treatment of fractures. Rigid aseptic technique, adequate assistance, and proper equipment were essential to success.

Difficulties and Errors Before and After Antimalaria Campaigns.—Dr. C. C. BASS of New Orleans summarized these as follows: Difficulties before the campaign were to get the people sufficiently interested to want the campaign; to secure the necessary appropriation of funds to support it; to secure a suitable staff of competent, well trained persons to carry out the campaign.

The errors before the campaign were failure to secure the definite promise of full cooperation on the part of the physicians who practised in the area; failure to plan to employ to best advantage and in accordance with their relative importance under the existence circumstances all available measures, including especially quinine control. Difficulties after the campaign were the return to former conditions as a result of neglect and loss of interest; changing population resulting in introduction of many infected people. The errors after the campaign were the discontinuance of the campaign too soon or too greatly reducing activities.

Control of Typhoid in Rural Communities.—Dr. ALECK P. HARRISON of Austin, Texas, stated that typhoid fever was one of the oldest diseases known to man. It was confined to man alone and not found in the lower animals. Its etiology and methods of transmission were thoroughly understood. Infection came only from an infected individual ill with the disease, or a carrier, through infected water, milk, or food. The infection must be swallowed. There was a constant source of infection in rural districts, the open-back privy, the open, unprotected wells, the unscreened houses being the chief sources of danger. Typhoid might be controlled and eradicated by educating the masses of people, educating the carriers, building sanitary privies, using pumps instead of open wells, screening the houses, properly treating patients, and protecting all water, food, and milk supplies, and lastly by rendering a large proportion of the population immune by vaccination. He emphasized the great importance in typhoid control, and all health work, of making a strong appeal to the common sense of the people to help protect themselves against preventable diseases.

Essentials of Successful Leadership for Public Health Work on a County Basis.—Dr. S. W. WELCH of Montgomery, Alabama, stated that the primary requirement for successful leadership for public health work on a county basis was native ability to deal with people, supplemented by a medical education and an understanding of the operation of law in human conduct, particularly with relation to rural psychology. A detailed and comprehensive knowledge of scientific phases of the health field seemed less essential to the health officer in the early beginning of health organization than ability to anticipate popular needs and harmonize divergent interests. Candidates for these positions should be intelligently recruited from every possible source. Their qualifications for the task should be observed under favorable conditions as might be found and the question of their fitness decided without prejudice. The extent to which effective supervision by the State Board of Health might contribute to an uninterrupted field of results in county health work and to the continued individual growth of professional personnel was dependent upon a set of conditions in which were inextricably interwoven problems of organization and administration, such as: Wise and fortunate selection of personnel; subordination of unduly self-seeking motives in functional bureaus and their staffs; clear enunciation of objections and fundamental principles; precision of adjustment of each individual to his place in the State organization; sureness with which the whole is moved by a will to think and act as a unit. Only, he believed, as we approached this ideal should we be able to even approximate our full measure of usefulness as a State health agency.

Soil Pollution, a Public Health Problem of Today.—Dr. E. L. BISHOP of Nashville, Tennessee, said that in the selection of a type of privy for community installation in rural districts attention should be given to two general factors: (1) The soil formation and ground water level, having in mind that the vertical distance between an area of pollution and ground water was the important one, the horizontal distance being of relatively little importance except in the case of limestone fissures and other natural or artificial openings. A recent study indicated that soil reaction had an important bearing on the survival of pathogenic bacteria; hence, this factor must also be considered. (2) Ability to secure community application of the type selected, taking into account the accessibility of materials, the economic status of the community to be served, and individual willingness to buy the degree of protection decided upon. The fundamentally essential thing was to do the best we could with what we had; to get dangerous matter off of the surface of the ground, place it where it was least dangerous, and the best advantage could be taken of natural processes; quicken, if possible, those processes, but make any compromise that lessened the exciting evil.

Fish as an Antimosquito Agency.—Dr. J. A. LEPRINCE of Memphis stated that the value of *Gambusia* to the people of the South should be very much more commonly known than it was today. It was the duty of the health officer and the sanitarian to see that they got it. If we were ready to do our share, the editors of the public press in our section were ready to assist right now. Each county health officer in the malaria belt should make it his business to see that a fish hatchery was established at the county seat, where those who came into town on Saturday afternoons could and would notice it. In some towns a concrete tank could be placed in the court house square, *Gambusia* installed therein, and the attention of the public invited to it by an appropriate sign. Also, owners of permanent stock ponds generally allowed them to use their property as hatcheries. In Tampico, Mexico, Dr A. Cuaron, representing the Mexican Federal Health Service, surrounded each of the large concrete fountain basins in the public plaza, where the crowds gathered, with a four foot high picket fence, painted in the national colors—red, green, and white—and kept the tanks empty and everybody guessing what it was all about. Later he turned on the water, stocked the tanks heavily with *Gambusia*, and had appropriate signs attached telling the public that these fish would drive yellow fever out of the city if the public would ask for them and use them in cisterns and all other water containers to prevent mosquito production. The public response was all that could be expected. The plan was a huge success. In many counties there were permanent ponds near well traveled good roads. These ponds could easily be stocked at small expense and large signs used to tell the rural public that the county health officer could supply them with the fish. In many cases the women's clubs, chambers of commerce, etc., could and would gladly help to finance the making and installing of this large advertising sign. The wise county health officer was aware that the public was of the opinion that "seeing is believing," and knew that the public could both see and feel the effect of the absence of the mosquito pest and of the usual seasonal malaria. If correctly planned, mosquito control measures could be made to be a lever for other classes of rural sanitation that were not yet so readily measured by the public eye. Some of the progressive county health officers were applying this idea with excellent, visible results. The county superintendents of schools could be interested and jars of fish kept in each school. Final school examination papers could contain a question or two about *Gambusia*. There should be properly labeled exhibits of *Gambusia* at every county agricultural fair. This exhibit could be used to induce farmers to breed this fish in their stock ponds. Many stock ponds in impervious soils went dry in the summer time. A health officer could often, by proper suggestion, get the farmer to deepen the pond at one point sufficiently to retain some water throughout the period of drought. This would keep the fish alive, provide water for stock, and help to prevent malaria transmission. It could be done in the season of the year when other work was not pressing. A drag scraper and one or two mules could do this work in a short time and give permanent beneficial results. The *Gambusia affinis* was present and waiting to help the health officer, waiting to work twelve to fourteen hours a day for him throughout the entire mosquito season without pay. The important question was, were the health officers ready, or were they only waiting? Would they give the little assistance necessary to overcome the barriers placed by nature in front of this small fish of big sanitary importance?

Prostatectomy; Pre- and Postoperative Treatment.—Dr. RAYMOND THOMPSON of Charlotte, N. C., said that all patients requiring prostatectomy should have special preoperative treatment and postoperative care, and especially those who had a large amount of residual urine infection. Blood pressure readings carefully taken at stated intervals afforded a valuable guide as to the proper time for operation. The clinical picture

and laboratory findings were of the greatest importance as an index to the patient's condition.

The More Common Causes of Chronic Urinary Obstruction in Male Children.—Dr. A. W. FRONTZ of Baltimore stated that congenital valves of the posterior urethra and *Spina bifida* were the most frequent causes of chronic urinary retention in children. The diagnosis was not difficult. As the internal vesical sphincter and prostatic urethra were frequently widely dilated in both conditions, as shown by cystography, developmental defects of the lumbar and sacral spine should always be eliminated. The treatment of obstruction from congenital urethral valves was most satisfactory if instituted before the development of serious lesions of the upper urinary tract.

Spina Bifida with Associated Diverticulum of Bladder (Urachus) and Pyonephrosis.—Dr. JOSEPH H. SMITH of Memphis said that in *Spina bifida* there was failure to close of the neural arches of the third, fourth, and fifth lumbar vertebra; some contraction and distortion of the pelvic bones; curvature of the spine over this region; supernumerary or accessory first lumbar rib; meningocele over the sacro-lumbar region; marked trabeculation of the bladder in its entirety, distorted left urethral orifice and orifice of diverticulum (urachus); diverticulum extending far up in the right hypogastrium, contents approximately 500 c.c., forming a large fluctuating tumor when distended; pyonephrosis of the left kidney and a large pelvis with abrupt termination of the distention downward of the thorium shadow which led one to believe there was an obstruction due to an aberrant blood vessel; a lower shadow superimposed upon the pyonephrotic shadow was due to dilatation of the ureter (hydroureter). He recommended left nephrectomy (extraperitoneal), closure of the diverticulum, with drainage of the sac without removal through a suprapubic opening. The bladder should be stripped far back from the parietal peritoneum.

The Problem of Chronic Infection of the Prostate.—Dr. A. NELKEN of New Orleans said that hematogenous infection of the prostate, besides that due to tuberculosis and to lues, occurred more frequently than was generally taught. Usually infection of the prostate was secondary to infection of the urethra. Statistics were variable, depending in some measure on the mental bias, the industry, and the opportunity of the compiler. It was his opinion, founded on his own experience, that the prostate was involved in 85 per cent. of all cases of gonorrheal urethritis and in upward of 50 per cent. of all cases of nonspecific infections of the urethra. For many years his coworkers and himself had made routine slide examinations of prostatic secretions in cases of urethral infections. Many cases had been checked by cultural methods, some few by the complement fixation test for gonorrhea. While it was the rule to find the specific organism of Neisser in acute gonorrheal infection of the prostate, it was his experience that it was rare to identify this organism in chronic prostatitis. The longer established the disease, the less the probability of finding gonococci. He had in his records but one single case with a reliable history of infection of more than two years' duration in which he was able to find an organism that appeared both on staining and culturally to be the gonococcus.

Postoperative Care in Surgical Conditions of the Kidney.—Dr. H. W. E. WALTHER of New Orleans stated that in considering the management of these cases the phases that most attracted his interest were (*a*) the care of the wound; (*b*) the care of the patient; (*c*) means of preventing complications; and (*d*) the treatment of complications after they arose. Urinary fistula did not commonly occur where the pelvis had been sutured or where the capsule and perirenal fat had been brought together over incisions in the renal cortex. Should urine come from the wound after the seventh day, urethral catheterism should be practiced to establish patency. As to the dressings employed, plain dry sterile gauze, held in place by adhesive strips, in not too bulky a quantity, changed as required, was all that was necessary. The dictum of Lower, that postoperative hemorrhage could be discovered more promptly through light dressings than through ponderous ones, applied equally as well to kidney surgery as it did to surgery of the prostate. The immediate after-care of the patient as related to shock deserves careful attention. Keeping the patient quiet, warm, away from draughts, guarding against pain by hypodermic administration of morphine sulphate, pantopon, papaverine, or the oral administration of some anodyne, and establishing diuresis by giving water freely either by mouth, by hypodermoclysis, by proctoclysis, or by infusion would do much toward restoring the patient. Hemorrhage at operation, which could not be arrested by hemostatic forceps and ligature, was best controlled by packing. Whether the gauze pack employed should be dry or saturated with one of the thromboplastin preparations still remained a mooted question. He had used coagulin a number of times with most pleasing results in cases of intractable bleeding from wounds following operations on the kidney.

Some Observations on the Treatment of Gonococcal Arthritis in the Male.—Dr. NEIL MOORE of St. Louis said that gonococcal arthritis was the result of focal infection and should be treated as such. Hard work on the part of the physician with proper cooperation of the patient over a sufficient length of time was necessary for complete relief. Foci of infection in the male were usually always located in the prostate and seminal vesicles. In the female, if the focus of infection would be demonstrated in the more superficial adnexa then it would seem that a complete salpingohysterectomy should be considered. Injections of foreign proteins undoubtedly were of definite value in the treatment of these infections. Local treatment of the involved joint was of secondary importance.

The Murmur of Mitral Stenosis in the Presence of Auricular Fibrillation.—Dr. NEUTON S. STERN of Memphis said there was a definite period of time in the heart cycle between the closing of the semilunar valves and the opening of the auriculoventricular valves. There was a similar interval of time between sounds corresponding to these events, *i. e.*, the second heart sound and the diastolic murmur of mitral stenosis. The diastolic murmur extended more or less throughout the diastole, depending on the stage of stenosis. There might be a presystolic murmur, or presystolic accentuation of the diastolic murmur when the auricles beat normally. In auricular fibrillation, the presystolic element was lost, and in the long pauses was replaced by a silent period. In auricular fibrillation, the diastolic murmur might fade out and be succeeded by silence, or might continue into the following first sound, depending upon the length of diastole. In auricular fibrillation, the constant interval between the second sound and the diastolic murmur persisted.

A Study of the Glucose Tolerance Test in the Obese.—Dr. JAMES E. PAULLIN of Atlanta said that he had selected for his study twenty-six cases, all showing from 10 to 80 per cent. overweight. In so far as possible, patients who exhibited other conditions which might influence the study were not used, although included in this number were six cases with arteriosclerosis and a slight hypertension. Before accepting them he determined as nearly as he could that the kidneys showed no essential damage which would influence the character of the reaction. In only one case did he feel that the kidney had been damaged sufficiently to influence the test, yet he did not think that there was sufficient damage to cause the response given. He also realized that practically all obese patients had at one time or another been accused of having some endocrine disorder which caused or contributed to their obesity. He felt that perhaps with these various disorders at times one might lose sight of the secretion from the islands of Langerhans, and neglect to diet and exercise these individuals instead of feeding them polyglandular extracts. He did not believe that the glucose tolerance in his cases was markedly influenced by any of the hypo-glandular inactivities. He fully realized that the number of cases studied was quite small and any definite statement made concerning this condition was subject to a large percentage of error; at the same time, he felt quite strongly that the results were insignificant and that by a study of the glucose tolerance test, even in so small a number of patients, he had detected at least five prediabetics, and two of the five had definitely developed diabetes. The test was simple, reliable, and of a great deal of value in stressing the importance of dietary therapy in these cases.

Food Allergy as a Cause of Abdominal Pain.—Dr. W. W. DUKE of Kansas City said that it was well known that humans and animals might become sensitive to alien bodies of many varieties. When this was the case they reacted whenever they came in contact with the body to which they were sensitive. The gastrointestinal mucosa might become hypersensitive to an article of food, with the result that the patient experienced severe abdominal pain, often associated with nausea and vomiting, whenever he ate the food to which he was sensitive. These alimentary symptoms were in many cases the sole striking manifestations of the reaction. Individuals sensitive to certain articles of diet, such as shad-roe, lettuce, honey, strawberries, cabbage, tomatoes, paprika, etc., usually gave a history of occasional attacks of abdominal pain and digest upset. As a rule, they were free from digestive disturbance between attacks. Individuals sensitive to the commoner articles of food, such as milk or eggs, had more frequent attacks of pain, and were often subject to chronic indigestion as well. The symptoms of food allergy might simulate somewhat those of a surgical lesion in the abdomen, and an error in diagnosis could be made unless this condition was kept in mind. Food allergy was observed more frequently in individuals who had organic lesions in the gastrointestinal tract or its appendages than it was in normal persons. Severe attacks of food allergy had acute appendicitis as a sequel in two cases, and surgical intervention was required.

The Rationale of Digestive Therapy.—Dr. ERNEST H. GAITHER of Baltimore stated that his most encouraging results had been obtained by the use of various combinations of iron, arsenic, and strychnine, given hypodermically. His personal experience was not sufficient to warrant an opinion as to the efficacy of the intravenous method of drug application. Postoperative digestive cases called for the exercise of the greatest discretion and closest attention, but as a class they were the most neglected with which one had to deal. Because a lesion had been eradicated was no reason to disregard well established principles in treating a damaged organ or organs involved primarily or secondarily; yet surgeons frequently prolonged the period of convalescence, and sometimes defeated the purpose of an operation, by permitting a gastrointestinal patient to return quickly to a general and often improper diet. In the hands of certain investigators, lavage of the duodenum and drainage of the gall bladder by the newer methods seemed to have been productive of good results, but their value in digestive therapy had not been conclusively established as yet. In true digestive neurosis where an absence of organic change was proven, the best results were obtained by prescribing a well regulated, properly balanced general diet, and by psychotherapy with hygienic, dietetic, and medicinal principles applied symptomatically. To tamper with the stomach in these cases was fatal from the standpoint of successful treatment, for after all the prerequisite was the reeducation and upbuilding of the asthenic, irritable nervous system.

Glossopyrosis.—Dr. K. HEBERDEN BEALL of Fort Worth, Texas, presented four cases in which a constant burning of the tongue was the sole symptom, and in which the physical examination was negative. In all of these cases there was an absence from the dietary of meat and whole milk. Two cases were lost sight of; the other two were relieved of the burning of the tongue by the addition of meat and whole milk to the diet.

Significance and Diagnosis of Cardiac Anginal Pains.—Dr. D. D. PAULUS of Oklahoma City said that pain, often of a more or less paroxysmal character, was a frequent finding in heart disease independent of angina pectoris. These pains were really protests from an overworked, inflamed, or degenerated heart and might arise from the heart as well as the aorta. Whatever their source, pains over the precordial area demanded a thorough investigation of cardiac function, etc., unless the condition present was obvious. Only by full and complete kowledge of the atypical symptoms of angina pectoris were we able to recognize many of the minor manifestations of this condition.

A Case of Sporotrichosis.—Dr. C. M. GRIGSBY of Dallas stated that sporotrichosis was a chronic infection characterized by both internal and cutaneous lesions and caused by one of the various forms of the parasitic fungi of the sporotrichosis group. There were four clinical forms: (1) The disseminated gummatous form characterized by small firm nodules which broke down. (2) The ulcerative type resembling tuberculous cutis. (3) The localized type which resembled a large gumma. (4) The extracutaneous forms, ulcerous lesions of mucous membranes, osteomyelitis, etc. The differential diagnosis lay mainly between tuberculosis cutis, syphilis, and mycosis. The diagnosis was made by bacteriological examination of the contents of the lesions.

A Discussion of the Newer Methods in the Treatment of Diabetes.—Dr. ELLIOTT P. JOSLIN of Boston stated that improvement in the care of patients with diabetes would come from physicians having them in their own hands. One could not expect to lower a hospital mortality of 2 per cent. much, if any, but one must lower home mortality, so that patients under sixty years of age, as well as over sixty, might look forward to the completion of their expectation of life. If the duration of diabetes accidentally discovered by insurance companies was twelve years, it lay in the power of every practitioner in the United States not only to duplicate their results for similar age periods, but to surpass them. The doctor should detect diabetes not by accident but by design. Thereby he would gain an advantage because treatment could be begun at a still earlier stage. The incipient case of diabetes was the easy one to treat, but the obligation to treat the early case thoroughly and well was even greater than in tuberculosis. It was imperative that clinicians should control their various types of treatment by follow-up methods over periods of years. There were advantages in all kinds of treatment. The one who originated a new policy was the one best able to find the fault in it. Tracts regarding treatment, etiology, and classification were all that were needed to clear up many other diabetic mysteries. Observe, he did not say discoveries, but the simple accumulation of facts which, when compiled, would convince and point out the true path. Neither to the general practitioner nor to the clinician were the anxious eyes of the parents of the little diabetic child turning today, but to the laboratory worker. We expected the laboratory men to do for diabetes what had been done for myxedema. Were we doing what we could to encourage them and to foster their laboratories? Did we tell patients to help them? Practitioners, clinicians, scientists—diabetes is a disease which needs the help of all of you.

The Treatment of Cancer of the Uterus by Radium.—Dr. LOUIS FRANK of Louisville said that cancer of the uterine body treated by total oblation of tubes, ovaries, and uterus yielded curative results which one could not hope to surpass by any other form of treatment. All borderline cases should be treated with radium. Late cases might be improved and palliated by radium as by no other means at our command. If the five-year period of curability was to be accepted as indicating a cure, then the results of radium treatment surpassed by far those obtained by the profession at large in the treatment of cancer of the cervix by surgical means.

The Undescended Testicle.—Dr. M. E. STOUT of Oklahoma City stated that the disturbance from the diminished internal secretion, together with the psychic phenomena was usually of more serious consequence than the physical condition. No operative procedure should be endorsed that interfered with the internal secretive properties of the testicle, and its removal should not be done except for the same cause that a normally located testicle would be removed. Judging from his own experience with thyroids and other observers' reports, the Bevan operation reduced the internal testicular secretion. Orchidopexy was the operation of choice when it could be accomplished without tension on the cord or disturbing the circulation. Orchido-celeoplasty cured the physical condition without the loss of the testicle or its internal secretion.

Retrodisplacement of the Uterus with Suggestions Regarding Their Proper Treatment.—Dr. W. T. BLACK of Memphis said that congenital retrodisplacements rarely required treatment. Simple displacements following a recent pregnancy could often be corrected by the wearing of a properly placed pessary. One should

select with judgment the type of operation best suited to be used in the various conditions encountered in retrodisplacements. It was an unpardonable mistake to select the same technique for all cases. A great many needless operations for this condition were being performed in his opinion.

Remarks on Surgery of the Gall Bladder, with an Analysis of 512 Cases from the Surgical Clinic of the University of Virginia Hospital.—Dr. W. H. GOODWIN of Charlottesville, Va., said that the operative mortality in cases of cholecystostomy in this series was 5 per cent. and in cholecystectomy 3.3 per cent. It was quite true that cholecystostomy was the operation of choice in a few cases where the prognosis was very poor and the more formidable operation of cholecystectomy thought to be unwise. Of the patients traced who had cholecystostomy done, 71.5 per cent. were cured, 23 per cent. improved, and 5.2 per cent. unimproved. Of those who had cholecystectomy done, 88 per cent. were cured, 9 per cent. improved, and 3 per cent. unimproved. No one should dogmatically say that cholecystectomy ought to be the operation of choice in all gall-bladder disease, but on account of the better immediate and final results and the shorter and more comfortable convalescence of cholecystectomy, he believed that operation should be done in the vast majority of cases. Deaver said that 65 per cent. of recurrences could be prevented by removal of the gall bladder. Cholecystostomy certainly had a field of usefulness in the very ill patient with infected gall bladder complicated by jaundice. In the very ill patient with stone in the common duct and deep jaundice cholecystostomy might be relied on to tide the patient over the emergency, and later the stone could be removed with much less risk to the patient. Crile emphasized the importance of slow drainage in the very ill jaundice patient by suturing a tube in the gall bladder, or common duct, if the condition necessitated this latter procedure, and establishing a fluid tight system of drainage by clamping the tube and releasing the clamp at frequent intervals. The jaundice case frequently had a very much delayed coagulation time, and Crile advised that a transfusion of blood or an intravenous infusion of 0.2 per cent. calcium chloride be done previous to operation and that this procedure be repeated after operation.

Some Observations on Prostatic Surgery.—Drs. F. L. CARSON and E. L. YEAKEL of Shawnee, Oklahoma, stated that the hazard of operation was less than the dangers of repeated catheterization. One of the chief dangers in prostatic work was the preliminary withdrawal of urine. In average hands the two-stage operation was the method of choice.

Acute Intestinal Obstruction.—Dr. GEORGE A. HENDON of Louisville said that the percentage of mortality was in direct proportion to the number of hours that elapsed between the onset of the symptoms and the performance of the operation. In cases obstructed one hour there was shown 1 per cent. mortality; two hours, 2 per cent. mortality; three hours, 3 per cent. mortality, etc. In searching for the obstructed bowel not over five minutes should be employed, and Moynihan had pointed to the fact that the obstructed loop of intestine was almost invariably to be found in the pelvis. His own experience bore testimony to this observation; also to the fact that the collapsed portion of the intestine invariably occupied the pelvic cavity. It was a notable fact that a bowel which was strangulated and became gangrenous outside the abdominal cavity was not so frequently fatal in its consequences as the same amount of intestine becoming gangrenous within the cavity. Hence the relatively low mortality rate of strangulated hernia. In every case morphine hypodermically, sufficient in quantity to control pain, should be administered after the diagnosis had been decided on. Under no circumstances should any effort at purgation be resorted to in the presence of an acute intraabdominal lesion. All attempts in this direction should be limited to the use of a simple enema.

Extrophy of the Bladder.—Dr. W. W. GRANT of Denver said that the extraperitoneal implantation of Bergenhem-Peters, modified by transplanting ureters and trigone intact through one anterior rectal incision was less dangerous and more quickly done and was the operation of choice. The two-stage operation was neither necessary nor desirable. The importance of preserving the blood supply and the valve action of the ureters in transplanting the ureters and base of the bladder intact was of distinct value as to the immediate success of the operation and in the prevention of ascending infection, and was the operation of choice. In advanced malignant and tuberculous disease of the bladder, the Coffey-Mayo operation and technique was the operation of choice. The rectal cloaca, as a urinary reservoir, was ample without operative effort to increase it. The rectal mucosa became almost as tolerant of the presence of urine as the normal bladder, and, he believed, the danger of uremia from bowel absorption of urine was very slight. Urinary control was essential to any successful operation on the bladder, and it was effectively and satisfactorily obtained in the above operation.

A Review of 300 Cases of Breast Disease.—Drs. IRVIN ABELL and STUART GRAVES of Louisville stated that the material upon which the review was based consisted of 300 cases coming under observation up to and including 1920; 139 were carcinoma, two were sarcomata, and 160 presented various types of non-malignant disease. Of the carcinomata, 136 occurred in women and two in men; both of the sarcomata occurred in women, and of the 160 cases of benign disease, 159 occurred in the female and one in the male breast. Of the 297 women, 198 were married and 99 unmarried, a proportion of two to one; 100 of the carcinomata occurred in married and 36 in unmarried women, a proportion of almost three to one; 98 cases of benign diseases were observed in married and 61 in unmarried women, a proportion of three to two; of the three men, two presented carcinoma and one benign disease. The preponderance of breast disease in married women doubtless found its explanation in the changes dependent upon and following lactation. In the earlier carcinoma cases of this series, recurrence in or near the site of incision was not infrequently noted. Later, with the employment of wide skin resection, recurrence at this site had been rare. The supraclavicular glands, lungs, and mediastinum had been the most frequent sites of secondary deposits. This had been noted with such frequency that they considered it advisable in all cases to ray the chest before operating. Of deposits in the osseous system, the ribs and sternum presented the greater number, with four in the vertebral column and three in the femur. Metastasis to the liver and abdominal organs had been infrequent. Of the twenty-eight cases of conservative amputation traced, all were well; of the thirty-four cases of excision of tumors traced, five reported recurrence; of the five, two were chronic mastitis with adenoma, one chronic cystic mastitis, and two adenomata, one of which was single and one multiple with two tumors in the right breast and one in the left.

Spinal Anesthesia.—Dr. J. R. GARNER of Atlanta said that any surgeon who would try spinal anesthesia, using stovaine as the medium of producing same, and following the technique outlined, would find five points to recommend its use as having a decided advantage over inhalation anesthesia, namely, ease and rapidity of administration; minimizing of surgical shock and marked amelioration of any existing shock; marked safety over gas-oxygen, chloroform, or ether anesthesia in cases showing cardiac, renal, or pulmonary lesions and in cases already in shock; absence of many of the disagreeable postoperative symptoms generally following the administration of a general anesthetic, and last, but not least, a most grateful patient.

The Roentgenological Diagnosis of Gastric Ulcer.—Dr. RUSSELL D. CARMAN of Rochester, Minn., said that since operation offered the only hope of cure in this affliction, it was of the utmost importance that the diagnosis be made early and before the lesion had become inoperable. The earliest stage at which the condition could be recognized by the rontgen ray depended on varying circumstances. Among these were the size of the lesion, its situation, its character, the thoroughness of the examination, and the examiner's keenness of observation and judgment. Very small lesions on either curvature were susceptible of demonstration, and he had occasionally been able to discover them in various parts of the stomach at a very early stage. Cancers high in the cardia might escape detection unless a screen examination was made with the patient recumbent.

Growths on the posterior or anterior wall required careful palpatory fluoroscopy with views at various angles. Nonobstructive lesions in the pyloric portion of the stomach, unless they deformed one or the other curvature, were sometimes peculiarly hard to find. The feasibility of operation in a given case of gastric cancer depended on many factors apart from those disclosed by the roentgen ray. Among these were the skill of the operator, the general condition of the patient, and the presence or absence of metastasis in regions where it could not be discovered roentgenologically. Yet, by showing the situation and probable extent of the neoplasm, the roentgen ray furnished data which should be considered in deciding the question of operation.

X-Rays in the Diagnosis of Pulmonary Tuberculosis.—Dr. JOHN D. MACRAE of Asheville, N. C., emphasized certain things in *x*-ray diagnosis of pulmonary tuberculosis. Stereoscopic lung plates were the most valuable method and all other methods were secondary in value. Interpretation of *x*-ray of the lungs should be made independent of clinical findings in the case. The radiologist and clinician should hold conference on each case examined and compare notes on their separate findings. Terminology and technique should be standardized. Study of the "normal" chest in order to interpret plates of the pathological should be resorted to. Postmortem examination on tuberculous subjects should be made as often as possible, with the purpose of correlating densities in the *x*-ray plates with actual lesions in the lungs. The careful application of these notes would improve the diagnosis in pulmonary tuberculosis tremendously.

(*To be continued.*)

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

STATE BOARD OF MEDICAL EXAMINERS OF WYOMING.

Cheyenne, June 6-8, 1921.

(*Continued from vol. c, p.* 1099.)

THERAPEUTICS.

1. Give treatment for lobar pneumonia.
2. Give management of a case of malignant hypertension.
3. Give management of a case of scarlet fever, and your treatment of two of the most common complications.
4. Give treatment for pernicious anemia.
5. Give treatment for epidemic meningitis.
6. Give treatment for chorea.

MATERIA MEDICA.

1. Name a cerebral stimulant, a cerebral depressant, a cardiac stimulant, a cardiac depressant, a respiratory stimulant, a respiratory depressant, a vasomotor dilator, a vasomotor contractor.
2. Give the most important alkaloids of the following drugs: Nux vomica, jaborandi, opium, digitalis, belladonna.
3. What is the action of digitalis, and would it be indicated or contraindicated in heart block.
4. Define the following: Diuretic, diaphoretic, soporific, anthelmintic, analgesic, hypnotic, hemostatic, cholagogue.
5. Upon what part of the bowel do the following act: Magnesium sulphate, aloes, oleum ricini, strychnine, jalap.

PHYSICAL DIAGNOSIS.

1. Give differential diagnosis between cardiac dilatation and hypertrophy. (*b*) What do you understand by hemic murmur?
2. Diagnosis of aneurysm of the thoracic aorta.
3. What are the methods of physical diagnosis? (*b*) Give technique.
4. Give significance of general retraction of the abdomen.
5. Name general causes of distention of the abdomen.
6. Give the technique of splenic examination.
7. Give the general causes for leucocytosis. (*b*) Give the general causes for leucopenia.
8. Give the diagnosis of paresis and locomotor ataxia.
9. Give the most common valvular heart disease, also the most dangerous. (*b*) Give the physical diagnosis of loss of compensation.
10. Give the diagnosis of tumors of the brain.
11. Give the physical diagnosis of neuritis.
12. Give the physical diagnosis of the stages of pneumonia.

ANSWERS.

THERAPEUTICS.

1. The *treatment of lobar pneumonia* "depends entirely on the type of case, and the condition of the patient. Routine treatment is the worst of all treatments. Answer the following questions before prescribing: Is the patient full-blooded, and is there a full bounding pulse? Is the pulse feeble, irregular, or intermittent?

"In the first case, in a young and previously healthy adult, if there be cyanosis, or signs of dilatation of the right heart, blood-letting to the extent of a few ounces may perhaps relieve the strain, but more generally treatment should be directed to maintaining the strength from the outset.

"In the latter case we can hope for nothing from a depressing treatment, so stimulants must be resorted to, such as alcohol, ammonium carbonate, egg and brandy mixture, quinine, ether, etc. The giving or withholding of alcohol depends upon its effect upon the pulse; should the pulse rate fall and the tongue become moist it may be continued. In asthenic cases, strychnine hypodermically is necessary from the outset, and normal saline may be given by the rectum or by the skin. Oxygen inhalations are used where there is cyanosis, but it is doubtful whether they have saved many lives. When there is evidence of failure of the heart (weakness of the second pulmonary sound, etc.) digitalis should be resorted to. Many prescribe it from the outset.

"The diet should consist of milk, beef tea or broths, white of egg, and so on. The patient should be as little moved as possible, and the bed pan must be used. As in other fevers, an airy room and good nursing are essential.

"Remember that narcotics are not well borne in respiratory embarrassment as a rule. Chloral should be avoided, but *if pain be excessive* a hypodermic injection of morphine does *more good* than harm, notwithstanding that theoretically morphine is contraindicated. It should not be given later than the first few days of the illness. The pain may also be relieved by poultices, which, however, are of doubtful use if carelessly made, or by application of ice. Cold packs applied to the trunk only, and frequently repeated, are very useful in relieving both pain and fever. Depressant antipyretics are to be avoided.

"The results of *serum treatment* are not unequivocally encouraging, but vaccine treatment would seem to be of better promise. Where possible, an autogenous vaccine should be used."—Wheeler and Jack's *Handbook of Medicine.*)

2. In *cases of malignant hypertension*, the patient should be impressed with the need of moderation in all things—work, play, exercise, and food. Constipation must be prevented; alcohol, tea and coffee should be forbidden; meat must be forbidden, or very little allowed; milk is to be taken; plenty of rest is indicated; sometimes venesection is useful; the chief drugs used are the nitrites, and iodides. The general health must be attended to, and conditions such as pyorrhea, and syphilis must receive appropriate treatment.

3. *Treatment of scarlet fever and its complications.*—The treatment is that of infectious fevers in general, and in addition: "1. *Serum treatment.*—Serum from convalescents, injected in doses up to 20 c.c., has sometimes proved successful. Good results have also been obtained with polyvalent antisreptococcic sera (*i.e.* sera prepared from several different strains of cocci). 2. The danger of spreading the disease is greatest during the desquamative period. Isolation must therefore be kept up for at least six weeks from the onset, or till all desquamation and discharges (nasal, aural, etc.) have ceased. 3. A minimum amount of nitrogenous food, to avoid irritation of the kidneys. This

caution does not affect milk, which may be freely used. 4. Daily toilet, tepid sponging, or tepid baths. 5. Inunction of oily antiseptic preparations into the skin, to prevent dissemination of the desquamating scales. 6. Examine the urine daily for signs of nephritis. 7. The condition of the ears must be carefully watched. *Complications.—Arthritis* demands warm and sedative applications. Wrap the joints in cotton wool; alkalies are better than salicylates, as the latter tend to irritate the kidneys. *Throat.*—Ice to suck; antiseptic sprays; glycerin of carbolic acid; warm applications externally. *For the severe types.*—Avoid caustic applications; relieve pain by cocaine solutions; internally, tincture of ferric chloride, with free administration of ammonia; quinine, either alone or with ferric chloride. Stimulants may also be required. Nasal feeding often gives much relief. *Nephritis.*—Milk diet, hydragogue purgative (avoid mercurials), hot air baths, hot packs, etc., according to the severity of the dropsy."—(Wheeler and Jack's *Handbook of Medicine.*)

4. *Treatment of pernicious anemia:* "Fresh air, rest, and a diet as liberal as the digestive powers of the patient will permit are requisite. Warm salt baths and massage are valuable adjuvants to internal treatment. The teeth should receive careful attention. If there be gingivitis or pyorrhea alveolaris, antispetic mouthwashes should be used at frequent intervals. Arsenic is the most valuable drug. It may be given in the form of Fowler's solution, the dose being gradually increased from 2 or 3 to 15 or 20 minims three times a day. Iron is rarely of service. Bone-marrow is sometimes efficacious. Inhalations of oxygen have been recommended. Appropriate anthelmintic remedies should be given, of course, in the cases in which intestinal parasites are present. Digestive disturbances are often benefited by the administration of diluted hydrochloric acid and a bitter."—(Stevens' *Practice.*)

5. EPIDEMIC CEREBROSPINAL MENINGITIS. *Treatment* includes the use of Flexner's serum (injected into the subarachnoid space after about 40 c.c. of the spinal fluid has been withdrawn). The patient is to be kept in a dark room, with his head elevated (but not flexed) and an ice bag applied to head and spine. Nutrient enemata may be required; both bowels and bladder need to be watched. Nervous symptoms may demand an opiate or chloral; urotropin is said to be of service.

6. CHOREA. *Treatment.*—"(1) *Rest in bed* is the first and essential point of treatment. (2) Arsenic in increasing doses, cod-liver oil, abundant food, and careful attention to the bowels. Antipyrin or phenacetin in increasing doses is also useful. Salicylates are of value only in rheumatic complications. When the movements are very severe, chloral may be freely given. (3) As soon as convalescense seems established, allow the patient plenty of fresh air and gymnastic exercises."—(Wheeler and Jack's *Handbook of Medicine.*)

MATERIA MEDICA.

1. *A cerebral stimulant,* caffeine. *A cerebral depressant,* opium. *A cardiac stimulant,* digitalis. *A cardiac depressant,* aconite. *A respiratory stimulant,* strychnine. *A respiratory depressant,* aconite. *A vasomotor dilator,* alcohol. *A vasomotor contractor,* adrenalin.

2. *Alkaloids of nux vomica.*—Strychnine, brucine.
Alkaloids of jaborandi.—Pilocarpine, isopilocarpine.
Alkaloids of opium.—Morphine, codeine, narceine, narcotine, thebaine, papaverine.
Alkaloids of digitalis.—None. (The *glucosides* are: digitalin, digitalein, digitin, digitonin, digitoxin.)
Alkaloids of belladonna.—Atropine, hyoscyamine, hyoscine.

3. DIGITALIS. *Physiological action:* It is a gastrointestinal irritant, it slows the rate of the heart, prolongs diastole, increases the force of the heart, it contracts the blood-vessels, and causes a rise in blood pressure, it also acts as a diuretic.

Therapeutic use: Digitalis is indicated in diseases of the heart: (1) when the heart action is rapid and feeble, with low arterial tension; (2) in mitral lesions when compensation has begun to fail; (3) in nonvalvular cardiac affections; (4) in irritable heart, due to nerve exhaustion. Digitalis is contraindicated in diseases of the heart: (1) in aortic lesions when uncombined with mitral lesions; (2) when the heart action is strong, and arterial tension high. Digitalis is also a diuretic; and it is also used in some forms of nephritis, exophthalmic goiter, pneumonia, chronic bronchitis, etc.

Partial heart block is exaggerated by digitalis; digitalis is, therefore, contraindicated. In *complete heart block* digitalis can do no further harm.

4. *Diuretic* is any agent which increases the flow of urine.
Diaphoretic is any agent which promotes the secretion of sweat.
Soporific is any agent which induces sleep.
Anthelmintic is any agent which expels or destroys intestinal worms.
Analgesic is any agent which relieves pain.
Hypnotic is an agent which induces sleep.
Hemostatic is any agent which checks a hemorrhage.
Cholagogue is any agent which induces a flow of bile.
5. *Magnesium sulphate* acts upon the colon.
Aloes acts upon the descending colon and rectum.
Oleum ricini acts upon the small intestine.
Strychnine acts upon the nerve plexuses in the small intestines.
Jalap acts upon the small intestine.

PHYSICAL DIAGNOSIS

1. CARDIAC HYPERTROPHY: "*Inspection* reveals fullness or prominence of the precordium with a distinct impulse. *Palpation* detects the impulse one or two intercostal spaces lower down and to the left. It is stronger and more or less diffused—the heaving impulse. *Percussion* determines an increase in the area of cardiac dullness vertically and transversely on the left side of the sternum, unless the right ventricle is also hypertrophied, when the cardiac dullness is increased to the right of the sternum. *Auscultation* in simple hypertrophy without any valvular changes detects a loud first sound of a somewhat metallic quality, the second sound being strongly accentuated. In the presence of valvular disease the characteristic murmurs are heard in addition."—(Hughes' *Practice of Medicine.*)

CARDIAC DILATATION: "*Inspection* detects enlargement and distention of the superficial veins and an indistinct, often wavy and diffused, cardiac impulse. If tricuspid regurgitation is present jugular pulsation will be observed. *Palpation* confirms inspection; the impulse is feeble, irregular, and heaving. *Percussion* serves to determine extension of the area of cardiac dullness transversely and especially toward the right side. *Auscultation* in the presence of valvular lesions reveals characteristic murmurs. If there are no valvular lesions the cardiac sounds are weaker than normal and the first sound is sharper in quality than usual."—(Hughes' *Practice of Medicine.*)

A *hemic murmur* is a murmur usually systolic, soft, and blowing, heard best over the pulmonic area, associated with evidences of chlorosis or anemia, and affected by the position of the patient, and denotes as a rule an impoverished condition of the blood.

2. ANEURYSM OF THE THOCACIC AORTA. "Any part of the thoracic aorta may be affected, and the symptoms arising therefrom are very variable. The fusiform type is most commonly met with in the early stages, a limited sacculation often supervening as the disease advances. (1) In the *ascending part of the arch* the swelling rarely reaches a great size, especially if it is intrapericardial, the sac usually rupturing before marked pressure signs are evident.

"(2) When arising from the *transverse part of the arch,* the symptoms vary with the direction taken by the enlargement. If it projects *upward,* a pulsating tumor may appear at the episternal notch, and cerebral effects may then ensue from interference with the circulation through the carotids, or from pressure on the venous trunks. If it extends *anteriorly,* it may form a large tumor with comparatively slight pressure effects, except the pain arising from its erosion of the thoracic wall; it then appears as a pulsating swelling to the right of the sternum. If the enlargement takes place either *posteriorly* or *downwards* within the concavity of the arch, symptoms in the shape of dyspnœa and dysphagia are early produced from the close contiguity of the trachea, œsophagus, and pul-

monary vessels. Dyspnœa may also be due to pressure upon the left recurrent laryngeal nerve, causing paresis to the cricoarytenoideus posticus muscle and difficulty in opening the glottis; the voice, moreover, becomes harsh and the cough hard, with what has been described as a 'metallic ring' about it, which is extremely characteristic. Laryngeal or tracheal stridor may be noticed in these cases, and a dragging of the trachea synchronous with the heart's action (the so-called 'tracheal tug'). Radiographic examination is a valuable means of diagnosis.

"(3) Aneurisms of the *descending arch* and *thoracic aorta* often attain considerable dimensions, and may project posteriorly to the left of the vertebral column, causing a pulsating swelling. The only prominent symptoms are pain, due to erosion of ribs or vertebræ, and interference with deglutition, which may be so great as to suggest the presence of an œsophageal constriction; in fact, before a bougie is passed in any case of dysphagia it is always advisable to make certain by radiography that an aneurism is not present. Ausculation in the left vertebral groove may also reveal the existence of a systolic bruit where such a condition exists."—(Rose and Carless' *Surgery.*)

3. The *methods of physical diagnosis* are: Inspection, palpation, percussion, and auscultation.

"The technique of inspection is as follows: (1) The patient should be stripped of clothing as far as possible. In children and in the male adult all clothing should be removed from the chest except that which may be necessary to avoid chilling of the surface; in the female, delicacy may demand that the patient be thinly covered, but wherever it is required the examiner should not hesitate to demand that the surface be bare, if only a part at a time, so that correct observations may be made. Where for any reason it is impossible to bare the chest thoroughly, much of the observation that would ordinarily be made by inspection must be made by palpation. (2) Inspection may be made with the patient either standing, sitting or in the recumbent posture, according to the circumstances of the case. When the patient is able, the standing or sitting posture is preferable, inasmuch as it is easier for the observer, and the movements of the chest are not interfered with. The patient should assume a natural or customary posture. Usually as soon as inspection is commenced they try to assume a "correct" posture. (3) It is necessary that the light fall equally on both sides, as the value of inspection is in the comparison of one portion of the chest with the corresponding portion of the opposite side. The observer generally stands directly opposite the patient, so as to have both sides within the range of vision. Where it is necessary to determine slight variations in the upper portion of the thorax, it can often be best done by the observer standing behind the patient and looking over the shoulder and downward along the clavicle and upper ribs. This will show the slightest degree of depression in these areas."—(Le Fevre's *Physical Diagnosis.*)

Technique of Palpation: "In order to obtain the most satisfactory results from palpation, it is necessary that the patient assume an easy position, whether it be standing, sitting or reclining. When feasible, the patient should be examined in more than one position, as posture has a marked influence on the position and force of the cardiac impulse. The observer should place his hand lightly over the lower portion of the præcordia and note the general character of the sensation conveyed to it. Then, by the tips of the fingers, the exact location of the maximum apex beat may be determined. Frequently, when the pulsations are indistinct or diffuse, it is difficult to locate exactly the point of maximum intensity of the apex beat. In such cases it is best to apply the tips of the fingers to the thorax beyond the point of visible pulsation, and, moving them along the interspaces, locate the point at which the elevating impulse is felt most distinctly.

Palpation enlarges the knowledge obtained by inspection of increase in size of the præcordia by determining whether or not the enlargement is due to œdema, inflammatory swelling, or new growths of the soft parts. .In regard to the bony thorax, it determines the degree to which it is influenced by each cardiac beat. . . . To palpate the anterior surface of the chest, the examiner stands behind the patient and places the hands over the chest so that the fingers are parallel with the ribs, resting in the intercostal spaces. By these means a better perception of motion and of time is obtained. To palpate the posterior surface, the position is reversed. The antero-posterior movement of the chest is noted by placing one hand over the sternum in front, and the other posteriorly over the spine. The movement of the clavicle and upper ribs is observed by placing the hand over the shoulder, the fingers resting on the anterior portion of the chest, and the thumb behind on either side of the spine."—(Le Fevre's *Physical Diagnosis.*)

Technique of percussion: "This physical method of diagnosis is employed by striking the chest gently with finger-tips, or by means of a percussion hammer (plexor) with a piece of ivory (plexímeter) interposed. The patient is preferably examined in the standing position. *Immediate percussion* is performed by simply striking the chest wthout an interposing substance. *Mediate percussion* is performed when the finger or plexímeter is interposed. The stroke is made by the middle finger or by the index- and middle fingers combined. The interposing finger or plexímeter must be pressed down firmly on the surface so as to yield a clear note. The method should be employed systematically on the two sides of the chest in corresponding location without moving promiscuously from one to the other position."—(Gould and Pyle's *Cyclopedia of Medicine and Surgery.*)

Technique of auscultation: "To auscultate satisfactorily, attention should be given to the position of the patient. Both sides of the chest should have opportunity to move with equal freedom. The patient should breathe naturally, and care should be taken that inspiration and expiration are not noisy. It is impossible for many persons to breathe naturally when their attention is called to the act. Usually the inspiration is taken quickly and forcibly; the breath is held for an appreciable time and then either forced out rapidly or allowed to escape so slowly that no sound is heard. In nervous patients fairly natural breathing may be obtained after coughing, or by having the patient first talk for a certain time. All constricting clothing, as stays, etc., should be removed, so that the chest may be as nearly normal as possible. As the value of auscultation is comparative, symmetrical points on the two sides should be examined and the differences noted."—(Le Fevre's *Physical Diagnosis.*)

4. *General retraction of the abdomen.* "The abdomen as a whole may be sunken in wasting diseases. It is very marked in inanition from stricture of the esophagus or pyloric stenosis and gastric dilatation; in the violent vomiting and purging of cholera and severe gastro-enteritis; and in the pernicious vomiting of pregnancy. If tenderness and muscular rigidity is associated with the retraction, one may suspect the early stage of peritonitis. The scaphoid (boat-shaped) abdomen is also seen as a symptom of meningitis (basal especially), tumor of the brain, and lead colic, because of the irritative tonic spasm of the abdominal muscles."—(Butler's *Diagnostics of Internal Medicine.*)

5. *General causes of distention of the abdomen:* Fat in the abdominal walls; fluid in the peritoneal cavity; gas in the stomach and intestines; an abdominal tumor; pregnancy.

6. *Technique of splenic examination: Inspection* is rarely of service. *Palpation:* The patient should be in the recumbent position. Then lay the warm hand flat upon the abdomen so that the finger tips, by exerting pressure and pushing up a fold of skin, lie close to and under the left costal margin at the tenth cartilage. The edge of the spleen, if sufficiently enlarged, may then be felt without further trouble. If not, desire the patient to draw several deep breaths, when the sharp splenic edge, moving with respiration, will be perceived to slip or ride over the ends of the fingers. Still further aid may be obtained by placing the unoccupied hand posteriorly between the ends of the tenth and eleventh ribs and making firm pressure so as to tilt the organ forward and make it more accessible. *Percussion:* The patient may be sitting or standing, or if recumbent should lie partly turned to the right, *i. e.* midway between the dorsal and right lateral postures—in either case with the left arm over the head. The per-

cussion strokes should be light, except in percussing the posterior portion of the spleen where its dullness merges into that of the left kidney. *Auscultation:* A friction sound may be heard over the spleen if its peritoneal investment is inflamed, as in infarcts due to a septic embolism or thrombus, or in the splenic abscess following such infarctions."—(From Butler's *Diagnostics of Internal Medicine.*)

7. The *leucocytes are increased* in: Inflammatory diseases, abscesses, certain infectious diseases (such as erysipelas, pneumonia, meningitis, diphtheria), lymphatic leucemia, splenomedullary leucemia.

Leucopenia is found in: Pernicious anemia, typhoid, and miliary tuberculosis.

8. DIAGNOSIS OF PARESIS: The development of the following symptoms removes all difficulties in diagnosis: *Mental*—alteration in character, loss of memory, defective will-power, changed moral sense, insomnia, violent impulses, melancholia or mania, unsystematized delusions of expansive character, with an exalted sense of well-being, gradually ending in dementia. *Physical*—hesitating, slurring speech, tremor of the lips, tongue, and upper extremities; pupillary changes, mysosis, loss of light reaction; exaggerated wrist-, elbow-, and knee-jerk; attacks of syncope, vertigo, epileptiform seizures, ataxia, trophic changes, and finally paralysis."—(Hughes' *Practice of Medicine.*)

DIAGNOSIS OF LOCOMOTOR ATAXIA: "There are four pathognomonic symptoms of locomotor ataxia, the presence of which makes the diagnosis positive; they are Westphal's symptom—absence of patellar reflex; Romberg's symptom—swaying of body and inability to maintain erect position with closed eyes; the Argyll-Robertson symptom—loss of pupil reflex to light, but reaction to accommodation retained; Fränkel's symptom—hypotonia."—(Hughes' *Practice of Medicine.*)

9. The *most common valvular heart disease* is mitral regurgitation. The *most dangerous valvular heart disease* is aortic regurgitation.

"THE PHYSICAL SIGNS OF THE LOSS OF COMPENSATION are of two classes:

"I. DIRECT SIGNS OF TRICUSPID REGURGITATION:—(1) Systolic murmur in the tricuspid area. (2) Weakness of the second pulmonic sound (part of the blood which should flow into the pulmonary artery regurgitating into the right auricle. (3) Marked irregularity of the pulse. (4) Venous pulse, best seen in the neck (there being no valves between the jugulars and the incompetent tricuspid valve), and also in the liver (hepatic pulse).

"II. SIGNS OF PASSIVE CONGESTION. (1) Edema, beginning where the circulation is normally at the greatest disadvantage, *i.e.* in the feet and ankles, and extending gradually upwards till the trunk and arms may be affected. (2) In grave cases ascites, hydrothorax, hydropericardium. (3) Congestion of internal organs:—(*a*) *Liver.* Enlargement, tenderness, slight icteric tinge. (*b*) *Kidneys.* Scanty, high-colored urine, abundant urates, albumin in varying amount, a few hyaline casts and isolated red blood corpuscles. Urea not diminished. (*c*) *Stomach.* Dyspepsia, catarrh, often hematemesis. (*d*) *Lungs.* Signs of congestion and edema; fine, moist râles and dullness at the bases."—(Wheeler and Jack's *Handbook of Medicine.*)

10. TUMORS OF THE BRAIN:—"The Symptoms are (1) Those due to increased intracranial pressure, such as fixed *headache*, giddiness, loss of memory, epilepsy, and stuper ending in coma. Tenderness on pressure may mark the site of the tumor. (2) *Vomiting*, not preceded by nausea, and bearing no relation to the taking of food. The temperature is often subnormal. (3) *Optic neuritis* is generally present. The edges of the disc are blurred, the vessels are tortuous and seen irregularly, and atrophy follows if life is prolonged. (4) *Focal symptoms* are produced when an area of the brain with definite functions is involved, and are at first irritative, followed by paralysis."—(*Aids to Surgery.*)

11. *Neuritis.* "The symptoms of neuritis will necessarily vary much according to the functions with which the affected nerve is concerned. There may be impairment of special or common sensibility, or pain may exist (referred to the peripheral distribution of the nerve), with more or less distinct tenderness along its course or at its point of emergence from some bony canal. In these cases the pain is generally paroxysmal and neuralgic in character, while the skin is hyperesthetic, and perhaps shows some vasomotor or trophic changes. Where a strictly motor nerve is implicated there may be twitchings of the muscles to which it is distributed, followed by more or less distinct paralysis, and subsequently marked wasting of the affected muscles. In the case of a mixed nerve being involved, both kinds of symptoms present themselves—that is, more or less severe pains and tenderness, with trophic symptoms, and distinct paresis or paralysis, with subsequent atrophy of the muscles to which the nerve is distributed."—(Quain's *Dictionary of Medicine.*)

12. *Physical signs of lobar pneumonia: "Inspection* reveals during the first stage deficient movement of the affected side, due to pain. The apex-beat is normal in situation, and the interspaces do not bulge. In the second stage the healthy side rises normally, the affected side lagging behind. If both lower lobes are impervious to air, the diaphragm cannot descend and the epigastrium does not project during inspiration, the breathing being conducted by the upper part of the chest (superior costal respiration). *Palpation* during the first stage shows the vocal fremitus to be more distinct than normal, especially over the diseased portions. In the second stage, the vocal fremitus is markedly exaggerated, except in those rare instances of occlusion of the bronchi by secretion. The cardiac impulse is felt in the normal position. *Percussion*—In the first stage, the percussion note is slightly impaired at times, having a hollow or tympanitic quality. In the second stage there is dullness over the affected parts, with an increased sense of resistance. Over unaffected adjoining area the resonance is increased (Skoda's resonance). *Auscultation.*—In the first stage there is heard over the affected part a feeble vesicular murmur, associated with the true vesicular or crepitant (crackling) râle, heard at the end of inspiration only. In the second stage there is harsh, high-pitched, bronchial respiration, at times resembling a to-and-fro metallic sound, except in those rare instances in which the bronchi are more or less filled with secretion. Bronchophony, or distinctly transmitted voice, is present and at times pectoriloquy, or distinct transmission of articulated sounds, may be heard. In the third stage, the breathing changes from bronchial to bronchovesicular and the crepitant râle (crepitatio redux) returns. As resolution proceeds, the breath sounds are associated with large and small moist and bubbling râles."(Hughes' *Practice of Medicine.*)

(*To be continued.*)

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

PATHOLOGISCHE PHYSIOLOGIE. B. H. E. HERING. 120 pages. Published by Georg Thieme.

PROCEEDINGS OF THE MEDICAL ASSOCIATION OF THE ISTHMIAN CANAL ZONE. 118 pages with illustrations. Published by the Health Department, the Panama Canal Zone.

THE MEDICAL CLINICS OF NORTH AMERICA, September, 1921, Vol. 5, No. 2. 592 pages with illustrations. Price, $12 per year. Published by W. B. Saunders Company

A FORM OF RECORD FOR HOSPITAL SOCIAL WORK. By GERTRUDE L. FARMER. 81 pages. Price, $1.50. Published by J. B. Lippincott Company, Philadelphia.

ANNUAL REPORT OF THE SURGEON GENERAL, U. S. NAVY, FOR 1921. 156 pages with tables. Published by the Government Printing Office, Washington.

REPORT OF THE U. S. INTERDEPARTMENTAL SOCIAL HYGIENE BOARD, year ending June, 1921. 198 pages with tables. Published by the Government Printing Office, Washington, D. C.

Medical History.

NEW BOOKS AND OLD.

XXI. GARRISON'S HISTORY OF MEDICINE.

By JOHN RUHRÄH, M.D.,

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If I were to start a medical library for a medical student, practitioner, hospital, or some medical society the first book I would buy would be the Third Edition of Garrison's "History of Medicine." There are several reasons for this. One is that I am a firm believer in the historical method of approach—what man has done and thought in the past are important in understanding the present and in foretelling the future. Much of the present day thought that seems inexplicable becomes clear when viewed in its historical perspective. There is too great a tendency, especially in this country, to suppose that modern medicine sprang into existence overnight much in the manner that Pallas Athene sprang full-panoplied from the head of Zeus. Such is not the case. The flower of modern medicine is the result of much watering, and, if I may be permitted the expression, of much manuring in the past; the real fruition, the real harvest will come in some far distant future. It is our duty to tend the plant which has been handed down to us from the ages and to pass it on to those who come after, let us trust, better from our care. Strange gardeners have contributed to its raising, stranger still now minister to it, prune it, graft it, fertilize it, protect it, and expose it. It is a hardy plant. It survives all sorts of mistakes; branches that were once supposed to be the strongest wither away and drop off, while tender shoots scarce noticed, come to be regarded as of the greatest importance.

Medical history, or any other kind for that matter, may be likened to a play, with its changing scenes, its various actors. It is one of those continuous performance plays with an ever-changing audience. To understand the play, one must be familiar with what has gone before. Garrison's book serves us well in this respect. He has drawn a vivid picture of what has happened with an account of the principal actors. Starting in at the beginning of history he points out the identity of all forms of ancient and primitive medicine. Just as all primitive religions are built along the same lines, so all primitive medicines follow the same plan—and ancient medicine was primitive medicine. From the ancients the story turns to the Egyptians, who have furnished the human race with so many basic ideas, and from them to Sumerian and Oriental medicine. Then the scene shifts to Greece, the wonderful Greece of old, to the days of Hippocrates and his school, and almost before we know it the Græco-Roman period is ushered in with Galen as its outstanding figure. The authority of this old worthy was such that for a thousand years or more the medical world of Western Europe stood still. What there was of progress was made by the Byzantine scholars, but they were rather encyclopedists than investigators. A few hundred years and the leaders of medical thought are to be found among the Mohammedans and the Jews. Then comes one of the most fascinating periods, the medieval, the complete story of which is yet to be written. In this third edition Garrison has added considerably to this chapter giving the newer researches of such scholars and authorities as Sudhoff, Neuburger, Wickersheimer, and Singer. From the mystery of the middle ages medicine emerges with new life, and reformation came alike to church and science, indeed a period of new birth. The next four sections deal with the subject of medicine in the past four centuries. These Garrison has aptly characterized as the age of scientific endeavor (17th); the age of theories and systems (18th); the beginning of organized advancement of science (19th); the beginning of organized preventive medicine (20th). All this takes three-quarters of the volume, a running, readable narrative, with a wealth of names and records of accomplishment. Never before in the history of medicine has so much been crowded into such small space and been made withal so clear, so charming, so instructive, without the curse of tedium. The very wealth of material dazzles one, but Garrison maintains a balance throughout. The only other book I call to mind that approaches it in this manner is Pagel's "Geschichte der Medizin," as revised by Sudhoff, where one gets somewhat the same readable narrative.

Old James Atkinson, of York, author of "Medical Bibliography A. B.," a remarkable work in more ways than one, says in his preface, "There is not perhaps any man so good a judge of the difficulty of writing a book, as an actual author." This is particularly true of Garrison's work, for I am sure unless a man has endured the throes of literary parturition he can never understand the labor pains that it must have taken to bring forth such a remarkable presentation of so complicated and difficult a subject. Perhaps instead of labor pains I had been more correct had I used the expression painful labor. To handle such a mass of names, dates, citations, quotations, a man requires patience which I doubt would have been found in Job himself had printing then been invented. When it comes to the exposition of the subject in such a clear, orderly, understandable way, it requires nothing short of genius. There has never been in America, and there probably will not be again for a long while, anyone possessing the immense store of knowledge of all that pertains to medical history and bibliography as has Garrison. Aided by a memory of uncanny kind, by industry unceasing, and by natural aptitude, he has acquired not only an enormous number of facts, but also an understanding which he is fortunately able to impart to others.

At the beginning of this article I said this history would be the first book chosen for a medical library. A second reason for this is the wealth of bibliographic material which it contains. Nowhere can one find so much within so few pages. Of course there are many references throughout the text made available through the index of names and subjects. The index of personal names alone covers twenty-five pages and contains about four thousand items; where biographical material is given the references are distinguished by bold type. The special material is added in the form of appendices. The first is a medical chronology starting with the neolithic age and ending 1920. This idea of a chronological table is an old one and, since the

printing of the elaborate one in Kurt Sprengel's "History of Medicine," has been much used. Garrison has had, of course, the benefit of the work of previous authors, and so has given a more compact table than many of his predecessors. It seems a pity he did not include some such arrangement as is found in the "Zeittafeln zur Geschichte der Medizin" of J. L. Pagel, where the concurrent happenings in various parts of the world and in the different departments of medicine are shown, but even Pagel published them in a separate volume. They are most useful for a beginner.

The second appendix is entitled "Hints on the Study of Medical History," and this is prefaced with a quotation from Abel's Mellin lecture, 1915, to wit: "Greater even than the greatest discovery is to keep open the way to future discoveries." Garrison is a believer in the method used by James Finlayson of Glasgow, who found that the didactic lecture on the subject was less useful than a "clinic" in a medical library, where instead of hearing of Hippocrates or Galen, the student saw and handled the actual books of these and other old worthies. This idea has been used by Billings, Osler, Welch, Dock, and others. Garrison, like Finlayson, is a believer in small classes where all present may take part, a method used by Trousseau in teaching medicine in the wards, which recalls that Sylvester once lectured on higher mathematics to a class of one. Osler taught many of his students history of medicine at his own home; others prefer to mix it liberally in the class room, laboratory, or clinic. Perhaps the method most used in this country is the medical history club or society of which there are quite a number.

The third appendix deals with collateral reading and contains a fine two-page estimate of the works of other medical historians, giving high praise to Bass's "Grundriss." There are really not so many medical historians of note, Le Clerc (1696), Freind (1725-27), Schulze (1728), Haller (1751), and Blumenbach (1786), broke the ground, and then Kurt Sprengel (1792-1803) published his seven-volume work dealing with the medicine of the ancients, an extraordinarily fine piece of accurate workmanship. Hecker (1822-29), Bostock (1834), Puccinotti (1850-56), Meryon (1861), Daremberg (1870), come and go and Heinrich Haeser (3rd edition, 1875-82), is here with a monumental history. Bass, Puschmann, Pagel, Sudhoff, Neuburger, Withington, and Garrison represent the best of the modern period.

The second part of the third appendix is an invaluable list of biographical references. First mention is made of the usual sources of medical biography, the works of Éloy, Bayle and Thillaye, Jourdain, Hirsch, Pagel, Thatcher, Gross, Kelly, not forgetting the numerous articles about medical men in the National Dictionary of Biography. There follows an alphabetical list from Acland to Zimmerman, each name with several references so that the labor of consulting three consecutive series of the Index Catalogue, forty volumes in all, is avoided. Perhaps of even greater value is the list of histories of special subjects which follows. This covers some fourteen pages and is remarkably full. Alchemy, anatomy, surgery, the specialties and allied subjects, the medicine of various lands and peoples, epigraphy, fees, folk-lore, to mention but a few of the captions. As I said once before in these columns, Garrison has done for medicine what Baedecker did for Europe and has done it with infinite charm.

Of the body of the work it is difficult to speak without seeming to praise too much. A quotation or two will give a better idea of the style and character of the book than pages of description. Take for example the page on the doctor in literature:

As modern physicians have been abundantly caricatured in the graphic arts, so the business-like tendencies of the profession in our own time have afforded liberal opportunities for literary satire. Bass has hit off the early nineteenth century doctors of this type as characterized "by the fashionable cut of their clothing, amiability, and the thermometer, stethoscope, percussion hammer, etc., peeping out of their coat pockets." All this implies a somewhat sweeping survey of a whole period, but we find similar traits of smartness in such characters as Dickens' Dr. Slammer in "Pickwick" or Dr. Jobling in "Martin Chuzzlewit," and Charles Reade's Dr. Aberford in "Christie Johnstone." Thackeray's Dr. Firmin and Wilkie Collins' Dr. Downward represent types of a craftier and more dubious kind. The best imaginative portrait of the high-bred physician of intellectual type is that of Lydgate, in George Eliot's "Middlemarch," a novel which, on the whole, affords the most effective sidelight on English medicine in the late Georgian and early Victorian periods. The keenest edge of the author's satire is reached in the medical gossip of the gentlewomen in the tenth chapter. Mrs. Cadwallader likens Casaubon, the fossil bridegroom of the beautiful Dorothea, to a dose of medicine, "nasty to take and sure to disagree"; and Lady Chettam, in discussing Lydgate's superior family connections, observes:

"One does not expect it in a practitioner of that kind. For my own part, I like a medical man more on a footing with my servants; they are often all the cleverer. I assure you I found poor Hick's judgment unfailing; I never knew him wrong. He was coarse and butcherlike, but he knew my constitution."

The same note is sounded in Major Pendennis' horror lest a lady marry her uncle's doctor, which would seem a far cry from the present esteem in which physicians are held. Henry James' "Washington Square" (1880) opens with an amusing assurance of their superior status in the United States. Balzac immortalized the French country doctor; no less than Dupuytren was the original of his Desplein, but his Horace Dianchon is a fancy portrait. Gustave Flaubert, Samuel Warren, Charles Lever, Oliver Wendell Holmes, Weir Mitchell have all approached the subject from different angles. Mitchell has made a clever study of a quack. The medical students of Dickens, Albert Smith, and others are sufficiently well known. Turgenieff's Bazaroff, the agnostic, anarchistic student of Eastern European type, is a genuine creation.

Another page taken at random deals with the prophylaxis of puerperal fever:

"The greatest single achievement of the New Vienna School was the determination of the true cause and prophylaxis of puerperal fever. In the eighteenth century, Charles White of Manchester, England, had enlarged upon the advantages of scrupulous cleanliness in these cases, and on February 13, 1843, Oliver Wendell Holmes (1809-94) read to the Boston Society for Medical Improvement his paper 'On the Contagiousness of Puerperal Fever,' in which he announced that women in childbed should never be attended by physicians who have been conducting post-mortem sections or cases of puerperal fever; that the latter disease may be conveyed in this manner from patient to patient, even from a case of erysipelas; and that washing the hands in calcium chloride and changing the clothes after leaving a puerperal fever case was held to be a preventive measure. Holmes' essay stirred up violent opposition

on the part of the Philadelphia obstetricians, Hodge and Meigs, and, in 1855, he returned to the charge in his monograph on 'Puerperal Fever as a Private Pestilence,' in which he reiterated his views and stated that one 'Senderein' had lessened the mortality of puerperal fever by disinfecting the hands with chloride of lime and the nailbrush. This 'Senderein' was Ignaz Phillip Semmelweis (1818-65), a Hungarian pupil of Skoda's and Rokitansky's, who, in 1846, had become an assistant in the first obstetric ward of the Allgemeines Krankenhaus in Vienna. This ward had acquired such a high mortality in puerperal cases that women begged in tears not to be taken into it. Semmelweis had noticed that the first ward differed from the second (which had a lower mortality rate) in that students came into it directly from the dissecting room for instruction, often making vaginal examinations with unclean hands, while in the second ward, devoted to the instruction of midwives, much greater attention was paid to personal cleanliness. With this idea in mind, he also made a careful study of the autopsies in the fatal puerperal cases. In 1847, Kolletschka, Rokitansky's assistant, died of a dissection wound, and Semmelweis was present at the post mortem. As he stood beside the body of his former instructor, he noticed that the pathological appearances were the same as in the unfortunate puerperæ of the first ward, and he now had his chain of evidence complete. He immediately instituted such precautions in the handling of labor cases that the mortality curve sank from 9.92 to 3.8 per cent. In the following year he had a mortality as low as 1.27 per cent., and all through the simple expedient of washing the hands in a calcium chloride solution in connection with pregnancy and the conduct of labor. Semmelweis is thus the true pioneer of antisepsis in obstetrics, and while Holmes antedated him in some details by five years, the superiority of his work over that of his predecessor lies not only in the stiff fight he put up for his ideas, but in the all-important fact that he recognized puerperal fever as a blood poisoning or septicemia (1847-49). Like Holmes, he met with fierce opposition, and while Rokitansky, Hebra, Michaelis, and, to his lasting honor, Skoda stood by him, he was persecuted by Scanzoni, Carl Braun, and the orthodox obstetricians of the day. Disgusted, he suddenly left Vienna for Budapest, where he became in due course professor of obstetrics at the University (1855) and published his immortal treatise on 'The Cause, Concept, and Prophylaxis of Puerperal Fever' (1861), as well as his scathing 'Open Letters to Sundry Professors of Obstetrics' (1861). But his sensitive nature was not equal to the strain of violent controversy, and brooding over his wrongs brought on insanity and death. He is one of medicine's martyrs and, in the future, will be one of its far-shining names, for every child-bearing woman owes something to him."

My impression is that Garrison has produced a book which will for many a day be used as an authoritative work of reference. I hope the publishers have printed a number of copies on paper that will withstand the ravages of time so that readers a few hundred years from now may have some idea of our ideas on the subject of medical history and may enjoy this captivating narrative.

One should also bear in mind Garrison's other works, the large number of separate articles printed in various journals and his introductions to such works as the Frank edition of Choulant, and Packard's edition of the "Regimen Sanitatis Salernitanum." Three other remarkable pieces of work are now in progress. One is one volume of the medical history of the late war; of this book I know nothing whatever, but it undoubtedly will appear in due time; the second, which I have had the pleasure of reading in manuscript, is a remarkable history of pediatrics now being printed in the system of pediatrics in preparation under the editorship of Dr. Isaac A. Abt of Chicago; another is the history of the endocrine doctrine, a valuable and exceedingly timely piece of work; and lastly, some notes on the history of military medicine.

Crabbe on Doctors.—Although Crabbe, the poet, has partially emerged from the obscurity that invested his name and works for many years after his death, he is still far from receiving the attention he deserves from the medical profession of which he was once a member. He had a good old-fashioned medical education. Errand boy for a time to Mr. Page, surgeon, of Woodbridge, his father later on sent him up to London "to pick up a little surgical knowledge," *à la* Roderick Random, and on his return to his native town, Aldeburgh, he became assistant to a surgeon there. When his master departed this life Crabbe set up for himself, but does not appear to have been very successful in practice, no doubt because he was too much of a scribbler. He subsequently shook the dust from his sandals on Aldeburgh and returned to London, where he managed to publish a volume of his poems. These did not bring him in much money, but attracted the attention of Burke, with whose help he became chaplain to the Duke of Rutland, and finally settled down as a country parson. By that time, however, Crabbe had become very familiar with the conditions of a country doctor's life, a familiarity which transpires in hie poetry. Theirs the duty:

> To ease the victim no device can save
> And smooth the stormy passage to the grave.

He waxes very sarcastic about the young physician who seeks to make his reputation by the writing of books:

> With them the treatise is a bait that draws
> Approving voices—'tis to gain applause
> And to exalt them in the public view,
> More than a life of worthy toil would do.

And he adds that "It weighs not much on what their powers be shown, When all his purpose is to make them known." But Crabbe, after all, handles doctors in a kindly spirit. He had learned to appreciate the abnegation and devotion of duty of "these men of serious words and sober style," friends "with whom we seldom smile,'" whose devotion he asserts "springs from nobler motives than a fee." But when he turns to the subject of the quack he lashes himself into a fury—and would do so once again if he lived in our times, for conditions in this respect have not materially changed. He deplores:

> That creatures Nature meant to clean our streets,
> Have purchased lands and mansions, parks and seats.

with "Twenty names of cobblers turned to squires," whose testimonials bolster up the quack's claims to have cured:

> Men snatched from graves as they were dropping in,
> Their lungs coughed up, their bones pierced through their skin;
> Their liver all one scirrhus and the frame
> Poisoned with evils which they dare not name.

And these, after taking the nostrum, "are now as roaches sound and all as brisk as bees." Crabbe's descriptions of village life in its various aspects are entertaining reading, especially so to country doctors, to whose benevolent notice we commend the lucubrations of their one-time confrère.—*The Medical Press.*

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Original Articles.

SOME CONSIDERATIONS OF THE PHARMACOLOGY AND THERAPEUTIC VALUE OF ALCOHOL.*

BY GEORGE B. WALLACE, M.D.,

NEW YORK.

So many conflicting statements of the effects of alcohol have been made, so much variation in experimental conditions has existed, and so much in the way of experiment and observation has started with the intention of proving the correctness of preconceived ideas, that it is a difficult matter to assemble, interpret, and evaluate the essential facts which have been obtained. The history of the use of the drug is one of tides of favor and disfavor. Just now the tide is low, with active efforts being made to erect such barriers as will prevent it from again flowing in. If it can be shown that alcohol is a curse and in no sense a blessing, these efforts to abolish its use may well be successful. If, on the other hand, it can be established that alcohol is of value, human effort is not likely to permanently prevent its legitimate employment. The present day discussion seems to center in whether alcohol has any therapeutic action of value, and I shall endeavor to limit myself to a consideration of this main point.

It is obviously out of the question for me to cover the entire pharmacological field concerning alcohol, and I have selected only three phases of the subject, namely the effect on the alimentary tract, the effect on nutrition, and the effect on the circulation. What conclusions I may draw in these connections will have to do only with effects of therapeutic doses.

In a consideration of the action of alcohol on the alimentary tract, there are, broadly speaking, two questions especially that present themselves: These are the effect on appetite and the effect on digestion. It is understood, of course, that appetite is quite distinct from hunger.

There are so many factors involved in the sensation, appetite, that it is a difficult matter to establish its relation to any single factor. Convincing experiments along this line are lacking. As a matter of fact it hardly seems necessary to rely on experiment to determine the effect of alcohol on appetite. It is a matter of common knowledge and experience that in some individuals it promotes appetite, and that in others it has the opposite effect. That we are unable to explain this difference in action or define the conditions which make possible a favorable effect, is regretable, but does not invalidate the fact that alcohol may act as a decided stimulus to appetite.

When we consider the action of alcohol on gastric secretion and digestion, we find a great mass of experimental data. In the carefully planned and executed experiments of Chittenden, Mendel, and Jackson,[1] it was shown that alcohol and alcoholic drinks had a marked effect on the empty stomach in dogs, increasing very greatly the flow of gastric juice and the content of acid and solids. The gastric juice was also strongly proteolytic. In another series of experiments, the effect on gastric digestion was studied, a dog with a gastric fistula being the subject. Meat was given as food, the alcohol being introduced through the fistula. At intervals small quantities of gastric contents were withdrawn through the fistula and examined, the amount of undissolved meat being taken as a measurement of the digestion. The alcohol and control experiments showed no particular differences, and the conclusion was drawn that alcohol does not materially affect the rate of digestion.

In experiments of a similar nature carried out in man it has been shown generally that alcohol excites gastric secretion in an empty stomach, although with this there may be a phase of inhibition. With regard to digestion, a number of observers state that there is a retardation, others have found no alteration and still others an acceleration. Possibly its action varies with the individual, as in the case of appetite. It is evident that further knowledge is required here. It may be pointed out, however, that Zuntz and Magnus-Levy,[2] in a series of metabolic experiments, found that alcohol did not lessen the utilization of food by the body and that Atwater and Benedict[3] believe that the utilization is actually increased.

Krehl[4] states that the gastric juice is diminished in acute infections and it would be of great interest to know what action alcohol would have here. Our zeal for knowledge would hardly justify, however, the necessary experiments in such cases.

I may summarize this part of the subject as follows: Alcohol, in proper dosage, is a definite stimulus to appetite in many individuals. There is no satisfactory evidence that it improves digestion, or, on the other hand, that it affects it unfavorably.

The nutritive value of alcohol is a subject which in the past has led to much controversy. A series of experiments remarkable for the high degree of patience and thoroughness shown, was finally carried through by several observers, with striking uniformity of results, and at the present time there

*Read before the Philadelphia County Medical Society, December 14, 1921.

seems to be complete agreement on the subject. It is not necessary to quote more than one set of experiments in this connection and those of Atwater and Benedict[7] have been selected. The experiments consisted in a study of metabolism, by means of the respiration calorimeter, on three different men. They were carried on through a number of days, periods off from four to nine successive days being spent in the calorimeter. During one period the ordinary diet was given, during another, alcohol was added to the diet. The alcohol amounted to about 72 g. a day. It was given as pure alcohol or as whisky or brandy, mixed with coffee or water, and the total daily amount was divided into six doses. The daily quantity of alcohol corresponded to that contained in a bottle of claret, or six ounces of whisky or five ounces of brandy. It was capable of supplying about 500 calories of energy. The points brought out in this work are as follows:

1. With this quantity of alcohol taken daily, not more than 2 per cent. was given off from the body unoxidized; that is, the coefficient of availability is 98 per cent.

2. The alimentary digestion of food, that is the amount of food digested and absorbed, was not interfered with. In fact the effect of alcohol seems to be to slightly increase the availability of the nutrients of the diet, especially of the protein.

3. There was no appreciable increase in loss of heat by the body when this quantity of alcohol was added to the diet.

4. The potential energy of the alcohol oxidized was transformed completely into kinetic energy, either as heat, or as muscular work, or both.

5. The efficiency of alcohol in protecting body fat was proven. Alcohol can replace isodynamic amounts of fat and carbohydrates.

6. The efficiency of alcohol in protecting body protein was evident, but was not fully equal in this respect to the isodynamic amounts of the ordinary nutrients. In individuals not accustomed to alcohol, a period of three days or more is required before the full protein protective action of alcohol develops.

These conclusions, in connection with the fact that alcohol requires no digestion to make it available, and that it is easily and quickly absorbed from the alimentary tract, seem to warrant the assumption that it has a definite value as a source of body energy. But before this assumption can be accepted as true there is another point to be settled, that is whether alcohol has any injurious effects, either on metabolism, on in other directions, which might nullify its usefulness as a food.

Some years ago Beebe[8] reported some experiments on himself in which the effects of alcohol on uric acid metabolism were studied. He drew the conclusion that alcohol, in what he considered a moderate amount, causes an increase in the excretion of exogenous uric acid, and believed that this is due to a toxic action of the liver. This work has been carefully repeated by Mendel and Hildreth,[9] giving alcohol in the dose and manner employed by Atwater and Benedict. They find in agreement with Beebe that the uric acid output is increased, and while they are unable to explain this increase, they believe it points to a toxic action on metabolism. It may be added that their work showed that the nitrogenous partition was unaffected except with regard to uric acid.

Hunt[7] has also offered evidence of a possible harmful effect on metabolism. He has shown that mice treated with small doses of alcohol for some time, acquire an increased susceptibility to a certain poison, acetonitrile; this increased susceptibility he believes is due to an added power of the body to break up the acetonitrile molecule, this in turn being explained by an increased power of oxidation on the part of the body. He considers this effect an evidence of an injurious action.

Now how are we to interpret these experimental evidences of alcohol damage? Surely we can not disregard them. But yet it seems to me that some increase in uric acid output and some increase in the oxidative processes in the body need hardly be considered as matters of grave concern, when we remember that the subjects in the Atwater-Benedict and similar experiments, went through the experimental tests with no evidence of any impairment of health or function.

There is another line of work which has been carried out in relation to a possible injurious action of alcohol. This is its effect on the course of infections. Dr. Abbott,[6] in Philadelphia, gave alcohol to rabbits before or after infection with *Streptococcus pyogenes, Bacillus coli,* or *Staphylococcus pyogenes aureus.* In the infection with *Streptococcus pyogenes* the mortality of the alcohol-treated rabbits was very much greater than in the controls. In the infection with *Bacillus coli* the mortality was also greater in the alcoholized rabbits than in the controls. In the inoculations with the *Staphylococcus pyogenes aureus,* the results were not clear cut. In these experiments the dose of alcohol, 5-6 cc. per kilo, was purposely selected as an intoxicating dose. In another very extensive series of experiments performed on different species of animals, dogs, guinea pigs, rabbits, mice, pigeons, Laitinin[5] studied the effects of alcohol administration on the susceptibility to anthrax and tubercle bacilli and diphtheria toxin. He reports a marked increase in mortality among the animals receiving alcohol. Laitinin also gave large doses of alcohol in his experiments. A great number of other experiments have also been made along this line, and in general the results are in agreement with those quoted. There is one objection that can be raised against much of this work, namely that the amount of alcohol given was excessive. For example a dose commonly used was 5 cc. per kilo. This dose, calculated for human beings in relation to body weight, would be equivalent to single doses of a pint or more of whisky for the average adult. It must be admitted, however, that in some of the experimental work, with similar results, the dose was within what would be considered therapeutic limits, but Laitinin[10] himself, in a later work in which small doses of alcohol were given, was unable to demonstrate any very definite injurious effect from the alcohol. I think, however, in consideration of all this work, we may accept as proven, that under the experimental conditions present, animals receiving large or moderate doses of alcohol show a lessened resistance to bacterial infection.

While these results point a definite warning, their direct transference and application to infections in

man is another matter. Corresponding human experiments are out of the question. Further, it can hardly be claimed that human infection, with a period of incubation allowing of a gradual formation of defense mechanisms, is a duplicate of these animal infections, where an almost overwhelming quantity of bacteria is suddenly injected into an unprepared host. We have, in short, no reliable evidence that alcohol in moderate doses lowers the resistance in infectious disease. We may, of course, come to an opinion in this matter through careful clinical observations. I think we all can agree, however, that there is no unanimous belief among clinicians that alcohol properly given causes an increased mortality in human infections. I may quote in this connection a few statements from men of large experience and keen powers of observation.

Hare,[11] in a special study of the subject, concluded not only that alcohol did not lower resistance, but that it even had a power of combating infectious diseases. Meltzer,[12] another careful observer, who also had the advantage of a pharmacological training, tells of treating a large number of typhoid fever patients with alcohol without losing a case, and while he does not state that the alcohol effected a cure, he quotes his experience as showing that it did not lower the resistance to the infection. Abraham Jacobi[13] stated: "I have known for a long time that unless I give large doses of alcohol in sepsis, my patients die. If I do give it, they are apt to get well."

Statements such as these might be multiplied indefinitely. Opinions to the contrary may also be easily obtained. I quote these because they show at least a fixed conviction among many able clinicians that alcohol in suitable quantities does not lower materially resistance to bacterial infections.

I may summarize this phase of the subject as follows: Alcohol has a definite value as a food, and can be used for this purpose in amounts which have no injurious effects sufficient to offset this value.

I pass now to the third consideration, the effect of alcohol on the circulation. There is also a great amount of experimental data on this subject. In general, animal experiments, with an intact circulation, show no appreciable effect from alcohol in small or moderate doses. The pulse rate, the blood pressure, the cardiac contractions, may undergo some slight variation, but this is not constant, and there may be at one time an increase, at another a decrease. One is justified from these experiments in the belief that alcohol is not a direct circulatory stimulant. More special experiments such as those of Dixon[14] on the perfused heart, show that alcohol strengthens the contractions when the heart has become weakened, particularly if the animal has been given alcohol previously, but Dixon, rightly it would seem, ascribes this effect to the energy yielding properties of alcohol rather than to a direct stimulation. In studies on human beings the results are equally negative. In typhoid fever, Cabot[15] failed to obtain a change in pulse rate or blood pressure from alcohol. Lieb,[16] in a series of hospital cases, found no evidence of a reflex or direct stimulation, as shown by blood pressure changes. I venture to say, however, in this connection, that the change in blood pressure is not a safe criterion of the action of a drug on the heart. If we estimated the value of digitalis in relation to its power of raising blood pressure, it would hardly occupy its present place.

There is one action of alcohol which may be pointed out. This is the flushing of the skin from a vasodilatation. This occurs, as is readily understandable, with no change in general blood pressure and no change in cardiac contraction. It means a certain redistribution of blood. This action is not peculiar to alcohol, as it is obtained from a number of other substances. It is easy to ascribe too great an importance to it, but on the other hand it may in some instances have a definite value.

I may summarize this division of the subject as follows: There is no evidence that alcohol is a direct stimulant to the circulation. Through its effects as a food, and through a redistribution of blood, it may be of value in circulatory disease.

In this very limited review of the pharmacology of alcohol, I have endeavored in as concise and simple a manner as possible to draw such conclusions as were definitely warranted by experimental fact. In turning now to the clinical uses of alcohol, we must enter more into the realm of individual opinion, the value of which is often questionable. On the one hand, impressions superficially formed, quickly ripen into opinions, which in turn easily change to convictions. These often die hard. On the other hand, there is a decided tendency at present in therapeutics to believe only in those drugs for which a definite action can be shown experimentally. This is undoubtedly due to the modern development of Pharmacology. The usefulness of this tendency need not be questioned, but at the same time it may be pointed out that there is a proper mean between doing too much and doing too little for a patient. Drug therapy may well be put on a basis of pure science, but there still should remain something of the art of healing. We might well imitate Wilkes and decide first in relation to the individual case whether a drug does good, does harm, or is valueless.

In the discussion of the clinical value of alcohol it is not my purpose to describe the many uses to which it has been, and still is, put. The number of these shows a decided diminution as time goes on, which is not without significance. But it is not necessary that a drug have an unlimited number of uses in order that it be considered of value, nor is it necessary to establish its benefits in mathematical terms. All I shall attempt to show is that alcohol in two instances at least has some value in therapeutics.

I believe it possesses a definite value in typhoid fever, and this as a food. We make special efforts now in this long drawn out disease, to maintain the nutrition of the patient. This is by no means always an easy task. If by the addition of alcohol, we can increase the diet by 500 or more calories, if we can to any degree stimulate the appetite for other food, we have accomplished a useful service. It is not denied that some patients do not take kindly to alcohol. It is conceivable that it may do harm in others. Certainly its enforced administration should not be a routine procedure. But, in spite of this, it seems to me well proven that alcohol is of value in the treatment of typhoid fever.

I believe there is another sphere of alcohol usefulness, namely in circulatory disease. I recall

a statement made by Dr. Emmett Holt last summer to the effect that there were three things to consider in the management of the average case: the treatment of the disease, the treatment of the patient, and the treatment of the family. Now while the pharmacology of alcohol may give no basis for its use in the treatment of the disease, there is ample clinical evidence of its value in the treatment of the patient. Those who have observed its effects in relieving anginal attacks can not fail to be convinced that it is a useful remedy. Whether it does this by action on the cerebrum, by causing a redistribution of blood, or in some other manner, whether other drugs or measures would bring about the same beneficial effect, all this is beside the point. The fact remains that it is of value in these cases, and that the benefit is not accompanied by any discernible injury. I might mention other conditions in heart disease in which there can be no question that alcohol has been of benefit to the patient, but it seems unnecessary to enter further into a discussion of this phase of the subject. I trust I have made it clear that there are good reasons for the conclusion that alcohol has a value in therapeutics.

There is another matter I should like to touch upon before concluding. There are signs at present of a growing desire on the part of some individuals and some groups, to restrict by legislative proceedings the drugs a physician may prescribe in his practice. Such a restriction has already been made in the case of alcohol. The question here of course is intimately connected with the more general one of prohibition. Without entering into a discussion of the merits of prohibition, or the necessity of medical restriction in enforcing it, I think that the medical profession should vigorously oppose such restriction. A majority opinion as to the value of any particular drug does not necessarily carry any more weight than a minority one. A physician in charge of a case automatically assumes full responsibility for it, and he should in no way be hampered in his management, provided he acts in good faith and to the best of his ability and judgment. There should be laws in force which inflict a sufficient penalty on those who through ignorance or cupidity fail to safeguard the welfare of their patients. But it seems to me that the principle of restricting the legitimate use of drugs is a bad one, that it will react badly on the profession, and that it ought to be actively combated.

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THE IMPORTANCE OF ENDOCRINE THERAPY IN COMBINATION WITH MENTAL ANALYSIS IN THE TREATMENT OF CERTAIN CASES OF PERSONALITY DEVIATION.*

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It is with the group of cases in which other organic disease has been as far as possible ruled out but which still show the presence of glandular imbalance that we are primarily concerned in this paper. At the present time the patient who suffers from an endocrine disorder, which is associated with mental symptoms, rarely is given the benefit of both glandular treatment and a mental analysis, utilized concomitantly as necessary elements of a rational scheme of re-education. The endocrinologist even though he may appreciate the close relationship between the personality and the glands of internal secretion is anxious to control his treatment and estimate its results by eliminating as many confusing factors as possible. If the case shows signs of glandular imbalance which he considers sufficient to cause the mental symptoms, he naturally enough wishes to show the value of endocrine therapy alone in correcting the condition. The psychiatrist who approaches the problem from the point of view of its psychogenesis is, on the other hand, usually able to find sufficient cause in the life experiences of the patient and in his adjustment to them to account for much of the abnormality found. Even as unsubstantiated as some of the psychogenetic theories may still be considered by certain physicians, the psychiatrist may criticize, to even greater extent, the supposed rationalizations of the endocrinologists. Many psychiatrists will prefer to trust the known uncertainties of the mental theories than to risk what seem to them the unknown uncertainties of the endocrine theories. Furthermore, the amount of time required to enable the examiner to consider either aspect of the situation thoroughly is so great that it may easily be made an excuse for having but one aspect considered at a time. For the endocrinologist has not often the time to devote to the intensive delving into the past that is necessary in a thorough mental analysis, while the psychiatrist as well as the patient may consider the extensive metabolic studies and *x*-ray examinations an unnecessary luxury.

If the psychiatrist is not familiar with the practical application of glandular therapy he will doubtless feel the need of consulting the endocrinologist, in which instance he may fear a division of the "transference" and a consequent lessening of his power to obtain results on a purely mental basis. For these as well as for other reasons the patient is but too often treated from one point of view or from the other, only and even when both forms of therapy are utilized, they are seldom used synchronously. Again there is among the general practioners as well as among the various specialists, much prejudice to be overcome, which prevents in many instances the thorough utilization of either of the two forms of treatment.

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While the experimental work that has already been done has shown the close relationship between the emotions and the glands of internal secretion, it has not been carried far enough to give in many instances a satisfactory basis for treatment. It is probable that from the involved and obscure nature of the problem it will always be necessary to base therapy to a certain extent on data obtained empirically. However, the fact that certain relationships between the sympathetic nervous system and the emotions are found to be fairly constant gives, in itself, a basis on which to build, while the therapeutic results already obtained in definite conditions such as myxedema, hyperthyroidism, hypopituitarism, and status thymico-lymphaticus suggest a promising foundation for the treatment of the innumerable deviations which individual cases present.

While a close relationship is recognized in such types as these, between the emotions and the vegetative nervous system, a similar relationship of great importance is also observed between the vegetative nervous system and the personality development. For instance, in the hypothyroid condition there is often found a sluggish mentality and slow physical response while an overactive mental state and rapid physical response is associated with the hyperthyroid condition. Associated with such increased activity are frequently found fears and apprehensive states, great susceptibility to noise, and periods of excessive fatigue when the too quickly used energy is exhausted. With the resulting temperament there is great difficulty in making the adjustments of every-day life. Such patients soon lose confidence in themselves when they realize the erratic things they do and say when under the tension of their overactivity; and their physical and mental incompetence, when the fire has burned out and they show temporarily a glandular underactivity, is equally undermining to their fund of courage.

Again in the Fröelich type of dyspituitarism as well as in certain other types of glandular imbalance, the secondary sex characteristics of a reversive type are frequently associated with the mental characteristics and tendencies which correspond. The boy is soon known as a sissy among his playmates. He is not up to the standards of the others in sports. He seeks the protection of his home, oftentimes of his mother, or he tries to compensate for his inadequacies through books or the world of his imagination and emotion. Later on in life such types are found making difficult marital adjustments or perhaps experiencing emotion only for members of their own sex. While the Freudian theories will undoubtedly explain and help in untangling certain types of homosexuality there are others that may be explained by glandular deviations. Such personalities may easily feel that society is failing to give them a fair deal since their spontaneous emotions are facilely dubbed perversions.

According to Timme there is frequently associated with hypopituitarism a lack of inhibition of the emotions. Such cases show much excitability on little cause, which alternates with sluggishness, frequently have phobias and compulsions, such as kleptomania, and show moral and sexual obliquities.

In cases which habitually have low blood pressure, inadequate circulation, frequent headaches, perhaps migrainous in type, enteroptosis with insufficient intestinal activity, and great fatiguability, it is quite natural that there should follow a feeling of general inadequacy in meeting the problems of life and making adjustments. The attitude that results is not one which welcomes difficulties but rather one which more and more tends to establish protective mechanisms until the individual's activities are limited to the narrowest possible circle of physical, if not also of mental endeavor.

These are a few of the more obvious situations in which there appears to be a close relationship between glandular imbalance and personality development. Adler has pointed out the many traits that may result from glandular inadequacy and the various adaptive mechanisms to which the child resorts in his efforts at compensation. Other aspects of the inter-relationships have been shown, but there still remains an almost unexplored field in the study of personality to be reached by the psycho-physical route.

The following five cases are cited to demonstrate the value of endocrine therapy together with mental analysis in (1) a case of manic depressive psychosis, (2) a psychopathic personality with episodal attacks, (3) a psychoneurosis showing antisocial tendencies, and (4) a case showing emotional imbalance in a girl who had utilized physical conditions in which there was a glandular element to protect herself against unpleasant social situations.

CASE I.—Miss S., aged 17, presented a mild depression of the insufficiency type with some physical and mental inadequacy, mental retardation, decreased psychomotor activity, suicidal ideas, and ideas of self-accusation and self-depreciation. There was gradual improvement and finally complete recovery following the combination of glandular therapy and mental analysis. The patient had had three depressive attacks, two of which were precipitated by mental stress and one by influenza. There was a history of irregular menstruation, inadequate intestinal action and great fatigability. The physical examination showed a girl of small stature, small hands and feet, small blood vessels, and hyperextension of the joints. Examination of the blood showed the sugar content to be 108 milligrams per cubic centimeter. The coagulation time of the blood was 11 minutes and the carbon dioxide combining power of the plasma was 61.7 per cent. The differential cell count showed polynuclear neutrophiles to be 44.4 per cent., small lymphocytes 40.0 per cent., large mononuclear lymphocytes 3.8 per cent., and eosinophiles 3.2 per cent. The blood pressure was 110/80. The x-ray examination of the skull showed a normal sella turcica. The increase in coagulation time, decreased leucocyte count and increased lymphocyte count, in an absence of organic disease, the history of irregular menstruation, inadequate intestinal action, fatigability, and the low blood pressure were some of the symptoms that pointed to a disturbance of glandular activity.

This case was considered one of hypopituitarism in which there had also been a subinvolution of the thymus. In spite of the psychogenetic factors which called for a rather intensive and extensive course of mental analysis, the mental sluggishness was helped by the administration of whole gland pituitary. During the year that this patient has been holding a position of responsibility in the community, the mental retardation has tended to recur whenever the pituitary has been discontinued for any length of time.

CASE II.—Margaret B., age 14, who presents a combination of physical, mental, and endocrine symptoms, is a defective, psychopathic girl of fourteen who was

subject to daily episodal attacks of excitement which were precipitated chiefly by her inability to have her own way. Although the constitutional defects in this case must be regarded as of importance, the social behavior was aggravated by an injudicious home training. This girl was brought reluctantly by her mother because of her increasing number of tantrums and screaming attacks, her violent temper and her assaultiveness. The family were afraid that she would do some permanent injury to her younger brother and sister whom she had often kicked and attacked with heavy sticks of wood. She injured herself by biting, pounding her legs and breasts, and sticking a nail file into her breasts, all to gain her mother's sympathy. The mother admitted that the child masturbated excessively.

The family history showed a tendency to thyroid and pituitary disorders although there were no other cases of mental defect. As a child the patient was never as strong as her two sisters and her brother, her musculature was not well developed, and at an early age an internal strabismus was noted. The general feeling of the family is that she was not normal from birth, and although she did not cry much, she slept little. At three and a half years she was hit by a speeding automobile, had a fractured clavicle, and was unconscious for a short time. When five years old she was operated on, with rather poor results, for strabismus but refraction has tended since then to decrease the defect. There was a history of chronic intestinal stasis with distention and much mucus in the stools. The periods of irritability were aggravated by the intestinal condition. The voluntary retention of urine was also a factor in her irritability.

Physical examination showed a girl of 14 years of age who was nearly six feet tall and much over-developed sexually. There was over-development of the bony structures, disproportion in the leg torso ratio, long, thin hands and feet, a nasal brow, absence of one lateral incisor, slight facial acne, oily skin, excessive perspiration, cold, bluish extremities, hair of coarse texture, a hairy growth on the extremities, a masculine distribution of the pubic hair and tendency to a mustache. The thyroid was enlarged and there was a tremor of the hands and a rapid pulse, which increased with exertion and apprehension and was associated with no organic heart lesion. There was cessation of the menstrual period for several months at a time. On stroking the chest there was a marked red line with a pronounced white border. The psychomotor coordination was exceedingly poor.

Examination of the blood showed a high color index and hemoglobin content, although the patient looked anemic at times and was especially pale after exertion and fright. She showed a fatiguability out of proportion to her robust appearance. The cell count showed an increase in large mononuclears and a decrease in polynuclear leucocytes. The blood sugar was 1.33 per cent. and the carbon dioxide tension was 60 per cent. *X*-ray of the skull showed a slightly enlarged sella turcica with marked erosion of the dorsum sellæ. The blood Wassermann and Wassermann of the spinal fluid were negative.

According to the Binet-Simon scale the patient graded eight years and six months while her chronological age was thirteen years and eleven months. This gave her an intelligence quotient of 0.65, which placed her in the feeble-minded group. Margaret showed considerable ability in drawing and much appreciation of good music, both of which traits could be utilized to advantage in her daily schedule. A psychological examination at the end of three months training and treatment showed that she had gained six months in mental level, and gave evidence besides of much improvement in attention, effort, and judgment.

Although there was evidence of much glandular imbalance in this case, the endocrine factors were considered by the endocrinologist who saw her as a small part of the cause of the total picture. (Margaret threw herself on the floor in rage during the consultation when she felt that sufficient attention was not being paid her.) However, without the help that was received from counteracting the overactivity of the thyroid alone the task of reconstruction would have been even more difficult than it was.

During the first few weeks of Margaret's residence with us it required continual effort to prevent situations from occurring which would precipitate tantrums. She was in a constant state of restlessness and irritability, and frequently expressed the desire to be at home where she "would not have to behave," and where she could have her own way. During this time she was untidy in her habits, considering the most primitive of acts the greatest possible joke. When reprimanded for something she was doing she would scream loudly and continuously, throw anything within reach, especially hair brushes, pound herself and threaten to cut off her breasts.

The most important part of her reeducation was the facing of each situation as it arose every minute of the day. Wet packs proved helpful and deprivation of privileges contributed their share toward correcting the screaming and assaultive behavior, the self-mutilation, the teasing and the incessant repetitions of questions and the answers, all of which had been used as secondary mechanisms to obtain what was considered unobtainable by less forceful methods. The episodes of excitement decreased very gradually until from being almost continuous she was having only one a day and at the end of her residence with us, none. As the improvement continued it was possible to keep her up to a higher standard of behavior and help her to face greater issues. There was a definite improvement in psychomotor coordination and in posture. The educational procedure utilized in this case besides academic work included gymnasium, typewriting, piano playing and dancing. With the treatment administered the pulse came down from 120 to 80, the palpitation decreased, there was much less dyspnea, the pink line on the chest became less intense and the white border less marked. The blood pressure was reduced from 128/85 to 110/80. More important still was the fact that the general mental and physical tension decreased. The patient was not so apprehensive at night or when walking through traffic. Furthermore, there was not so much actual distress at noise. The sleep was increased from four or five hours to nine or ten. The sedatives which were used in the beginning seemed to have little effect and were soon discontinued.

While this case presented a congenital defect the cause of which could not be determined, the reeducational procedure that proved most beneficial was one which took into consideration both the endocrine imbalance and the need of mental therapy.

CASE III.—Mrs. M., a woman of forty, was referred because she had taken small amounts of money and articles of clothing from the home in which she was employed as a matron. She was also found to be corresponding rather energetically with a married man whose wife objected. The patient had slept but a few hours each night for a period of months and had had continual headaches with migrainous crises, very severe in nature at frequent intervals, irregularities of the menstrual function and a continued feeling of tension and apprehensiveness, hot flashes and palpitation.

Physical examination showed a fairly well developed woman of the tall thin type. The eyebrows showed very perceptible thinning over the outer third. The teeth of the lower jaw were crowded. The pupils were large and reacted slowly to light. The reflexes were exaggerated and there was a tremor of the hands. The blood pressure was 160 systolic and 110 diastolic. The Wassermann of the blood, the blood count and the urine examination were negative. *X*-ray of the skull showed the sella turcica to be of average size with no visible erosion. There was, however, a tipping forward of the posterior clinoids. There was a marked limitation of the visual fields, most marked in the left temporal region, which improved under treatment. The patient complained of unconsciously walking toward the left on the sidewalk, a symptom which disappeared as the condition improved. The fundi were normal. Timme has reported a case of dyspituitarism* similar to this

*Timme, Walter: Dyspituitarism with limitations of the visual fields; symptoms disappearing under the use of internal glandular therapy.—Contributions of the Neurological Institute, Vol. III, page 151.

in which there was limitation of the fields which responded to pituitary feeding.

The following social history was obtained. The patient was a widow with two children who were dependent on her for support. Her husband had had tuberculosis of the larynx, had been alcoholic the last years of his life and finally, after months of threatening, had committed suicide by turning on the gas. He had had during their entire married life nocturnal epileptic attacks following which he had been irrational and had clutched at her wildly, filling her with terror. All of this she had kept to herself, being ashamed to admit it even to members of her family. She had devoted herself to him, hoping that she might be able to protect him and his reputation from them all. She was, furthermore, a very repressed person who still felt inhibited in the presence of her mother, had never been able to make a satisfactory marital adjustment and was over-conscientious in most of her judgments of life. Following her husband's death she had indulged the maternal instincts, that were not exhausted in the care of her children and the babies in the Home, by listening to the domestic difficulties and business troubles of a man who had been a family friend. The friendship had no further emotional content than this notwithstanding the fact of its being the source of some discomfort to the wife. It was easily abandoned. In spite of much economy and hard work it was difficult to make ends meet in caring for her family, for besides the regular expenses there were debts of her husband's that she dreaded to have known and was trying by degrees to pay off. The combination of physical and mental pressure was so great that she lost her sense of proportion and was tempted to take things, to help out the home situation, acting in a way that was incompatible with the type of woman she represented.

It is doubtful if either mental analysis or endocrine therapy alone would have helped this patient to regain her social equilibrium. The pain in the head and associated feelings of confusion responded to endocrine therapy (pituitary and corpus luteum being utilized with sodium bicarbonate), and the feelings of tension, the sleeplessness, and the vasomotor disturbance disappeared. It was possible through mental analysis to give great relief to this woman who had repressed her emotions to such an extent since her earliest childhood. As she said, "I suppose the medicines do good" (she had a strong prejudice against them), "but it is the talks that seem to help me most." Considering the improvement in the visual fields as well as in the other subjective symptoms, it may be inferred that the physical help was quite as important as the mental therapy.

The following case was referred through the courtesy of Dr. Ludwig Kast, to whom I am indebted for permission to make use of his records in this paper:

CASE IV.—Elizabeth F., a girl of fourteen, had had intestinal attacks causing such distress that it had been necessary for her to leave boarding school. As the attacks recurred when she was separated from her family, she had remained at home most of the school term where she had had frequent tantrums and had even thrown books at her mother of whom she was exceedingly fond. One year previously she had on several occasions set fires, which nearly terminated fatally.

The following history was elicited: Ten years previously the mother had become somewhat estranged from the father and had made up her mind to devote her life in the future to her two daughters. As she expressed it, she gave to the older "all her intellect; to the younger all her emotion." Elizabeth, who was the younger of the two, grew up in the warmth of this great emotion and, furthermore, was able to obtain whatever she wished from both parents. There existed with Elizabeth, however, considerable jealousy of the older sister who was closer to the father in her sympathies than Elizabeth was. Early in life she learned that she could rule her parents through her emotions and she continued to take advantage of this until the maelstrom of her adolescent emotions became so great that it was no longer easy to separate cause from effect. After the fires occurred she was examined by a psychologist who advised her going away from the family and especially from the mother. She was consequently sent to a summer camp but for one month only. She then went away to boarding school. While there, however, she cried most of the time and was very dependent on the daily letter she sent home. She admitted that she missed greatly the constant demonstration of affection with which she was surrounded when at home. Her menstruation stopped for a period of three months and she began to have intestinal and digestive attacks in which there was intestinal stasis associated with distension. Cathartics and enemata were of no avail. It seemed necessary for her to return to her mother, which was the thing above all others in the world that she desired. Fearing that she might have a return of the symptoms the parents allowed her to remain at home for four months of the term.

Physically, Elizabeth presented symptoms of glandular imbalance including some of the characteristics of hypopituitarism. She was small and stocky in build, having gained some forty pounds in weight during a short period following an operation for appendicitis. The eyes were somewhat near together and there was a tendency to a nasal brow. There was some disproportion in the leg-torso ratio. On stroking the chest there was but a faint pink line. There was a history of urticaria, nose-bleeds, extreme fatigability, painful and irregular periods from the time menstruation was established and intestinal attacks which increased in severity during the menstrual period. She also showed a predisposition to frequent infections of the respiratory tract. The appendix had been removed two years previously but no adhesions or constrictions of the intestines could be found by *x*-ray or seen fluoroscopically. The sugar content of the blood was 0.74 and the hemoglobin was 0.75. The other laboratory tests were all negative.

Intellectually Elizabeth was fourteen months retarded which gave her an intelligence quotient of .91. Although she had moved much from school to school it was in the tests of native ability and those requiring reasoning power that she did poorly as well as in those that were dependent to some extent on training.

In this case there apparently occurred, because of the extreme homesickness from which the girl suffered, a general glandular inactivity which was evidenced by the cessation of the menstrual periods as well as by the intestinal inactivity. The girl's early history gave evidence of a predisposition to glandular imbalance. When a means of escape from an intolerable situation was presented through physical symptoms they were magnified more or less consciously until they became a means to the end desired, namely, again living in the atmosphere of intense emotion and adoration offered in the home.

Elizabeth was given small doses of pituitary with the result that for the first time in months her digestion returned to a normal condition. When this excuse was removed she was helped to see how much was to be gained by returning to school, in the way of preparation for a course of nursing later on.

Elizabeth then made a satisfactory adjustment at school for the first time, stating that the thing that helped the most was looking forward to the time when she could become a nurse. Her mother was made happier than she had been for years because of her attitude when she returned from school. Although the improvement is marked, a plan of procedure has been mapped out for the next two years which will help her to keep her balance through the difficult years of adolescence. The glandular therapy is being continued with the same good results.

A case similar to this, also referred by Dr. Ludwig Kast, was that of a boy of nine, who also made use of an intestinal condition in order to avoid an intolerable situation in his school and exaggerated his symptoms which were originally physical in na-

ture. He had remained at home most of the winter. He, too, admitted frankly that his condition would not have been sufficient to keep him at home, had the school situation been a pleasant one. There was evidence of glandular imbalance in this case as well and correlated with it a strong tendency to compensate through a world of imagination for the everyday adjustment with his schoolmates which he found too difficult to make.

In such cases as these the underlying physical inadequacy is too often underestimated in its effect on the social life of the child. The greatest possible emphasis should be laid on the social adjustment which is necessary to counteract any associated feelings of inferiority.

Conclusions.—There are a large number of psychoneurotics and social deviates of various kinds who have been socially inefficient for years. They have gone from medical man to surgeon, from neurologist to psychiatrist, but have failed to regain their nervous equilibrium because their need has been so definitely twofold in nature. For when their glandular balance has been recognized, the fact has not been appreciated that they have formed compensatory mechanisms and conditioned reflexes that must be treated from the mental side alone. It is only when the twofold adjustment is made that they can reach their highest degree of efficiency as integrated personalities.

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TURPENTINE BY INJECTION IN DERMATOLOGY AND UROLOGY.*

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THE imperfect state of therapeutics makes every new suggestion, whether based on scientific facts or empirics, worthy of serious consideration, and this furnishes sufficient ground for the interest aroused in the method of injections of turpentine, first advocated by Klingmüller in Germany. He was prompted to revive the use of this old therapeutic agent by the newer conception in therapy, especially developed in Germany.

Since 1895, when Matthes introduced the milk injection therapy, resulting in reactions similar to those obtained from tuberculin, there have accumulated more and more proofs bringing into doubt the previous conception of specific therapy.

Before that Rumpf reported good results in typhoid by applying a non-specific heterovaccine of pyocyaneus, and later v. Wagner recommended tuberculin in paresis, which in association with mercury is still his method of choice in the treatment of this disease.

Then followed the era of autoserum therapy in skin and other diseases, and during the last few years numerous protein derivatives, colloids, and chemical substances have been recommended which had for their object the stimulation of the natural forces of the body in overcoming disease. Turpentine is one of them—a link in the chain of remedies belonging to the group of protein therapy, stimulating treatment, or whatever term one may chose to call it.

Klingmüller's first publication appeared in 1917[1], and was supplemented by a further communication in 1918[2]. In these the author details his observations in a large number of cases which he subjected to treatment with turpentine oil in 10 to 20 per cent suspension, and in doses varying from 0.1-0.4 c.c.

In brief, his experience may be summed up as follows: In acute anterior urethritis a dose of 0.2 c.c. was sufficient to check the discharge, but he points out that the remedy had no effect upon the gonococci directly, thus making the use of local treatment necessary. In gonorrheal polyarthritis and tendovaginitis, remarkable results were obtained. This was not found to be the case in acute epididymitis and posterior urethritis, where the injections proved a possible source of serious complications.

So far as its use in dermatology is concerned, Klingmüller has obtained excellent results in furunculosis, folliculitis barbæ, impetiginous and infiltrating eczema of the extremities, acne, pityriasis rosea, lichen planus, impetigo contagiosa, etc. Noteworthy were the results in trychophytosis, where one injection was sometimes sufficient to cause a complete disappearance of the lesions. Scrofuloderma and lupus vulgaris responded to a lesser degree, exhibiting similar reactions to those obtained with tuberculin, and even in cases of unknown etiology, as certain types of acute dermatitis, strophulus infantum, urticaria, etc., turpentine proved of benefit. In addition he found it useful in cystitis, in certain types of pyelitis, and in inflammations of the parametrium.

Klingmüller's work was soon followed by numerous studies, and as is usually the case, there have been enthusiasts as well as skeptics. Among the authors who consider his method more or less successful may be mentioned: v. Brölemann, Sellei, Gravisch, Meyer, Holzhauser, Werner, Sfakianasis, Becher, Karo, Appel, and Assmann. On the other hand Pürkhauser, Schubert, Ruette, and others express disappointment with this remedy.

The affections that were originally subjected to this therapy were soon augmented so as to include Duhring's disease, pemphigus, erythema exudativum multiforme, bubo, chancroid, and certain gynecological and surgical diseases.

Theoretical Considerations.—The theoretical considerations which underlie the use of turpentine may be briefly summarized as follows: Chemically turpentine belongs to the group of terpenes ($C_{10}H_{16}$), which is the principal constituent of the so-called "essential oils." As is well known, the essential oils possess the power to produce irritation when locally applied, and have also the ability to produce active hyperemia. While some of the terpenes are more or less bactericidal, there is little evidence to support the view that turpentine possesses this quality. The most striking property of turpentine is its remarkable *chemotactic* action on *leucocytes*.

Interesting in this respect are the experiments of Heinz[3], who noted a marked increase of the leucoblastic tissue of the bone marrow after the intra-

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venous injection of 10 per cent turpentine emulsion into a guinea pig. Based on similar facts many observers ascribed the therapeutic effect of turpentine to a leucocytosis, and particularly to aseptic abscesses caused by these injections.

Klingmüller offers numerous other explanations for the action of turpentine, but he too, in common with other observers, emphasizes the important part taken by the leucocytes in that process.

The leucocytosis theory, however, is not accepted by all authorities, and indeed, should we admit that a leucocytosis is the constant concomitant of the injections of turpentine, how can we explain its beneficial effect in non-parasitic skin affections?

To explain its action in these cases some other theory is necessary, unless we assume that the beneficial effect of turpentine is to be attributed to the breaking up of the leucocytes followed by the liberation of protein bodies acting as a stimulus. This last statement is equivalent to the conception of the non-specific protein therapy, which in fact seems to offer the most satisfactory explanation.

As pointed out before, the peculiar reaction of the body to non-specific proteins introduced parenterally can be provoked by various chemical substances, such as collargol, electragol, argochrom, iodine, etc. Whether their action is due to their own stimulating properties, or to disturbances in the proteins and colloids of the body, is not material. Their fundamental distinction, however, from other methods of treatment lies in the fact that their action is exerted not upon the etiologic factor of the disease, nor upon any one of the special organs of the body, but they apparently exert a stimulating action upon all the cells of the body (ergotropy). Leucocytosis, stimulation of the leucoblastic tissue, fever in some cases, and similar reactions are instances of hyperactivity of the tissues. Increased growth of granulation tissue, seen for instance in ulcers of the leg, is another objective sign of stimulated vitality. This explains many of the questions linked with the so-called stimulation therapy in general, and the turpentine treatment in particular.

Personal Experience.—We have experimented with a variety of affections which include the following dermatological and genito-urinary diseases: acne vulgaris, dermatitis venenata, *x*-ray dermatitis, chronic eczema, seborrhoic eczema, rosacea, impetigo contagiosa and bullosa, furunculosis, pyodermia, tinea, folliculitis barbæ, psoriasis, chronic urticaria, lichen urticatus, prurigo mitis, neurodermitis, pruritus universalis, lupus erythematosus, ulcus cruris, acute anterior urethritis, epididymitis, bubo, and a few other lesions which are not included in this paper.

So far as preparation and technique is concerned, Klingmüller's method was followed implicitly. A 10 to 20 per cent emulsion of rectified turpentine oil in pure sterilized olive oil was employed in all cases subjected to that treatment. (Terpichin, a preparation of turpentine oil deprived of the resins and oxides, in combination with quinine and anesthesine, advised by Karo, proved of no advantage in comparison with the original turpentine oil.) The largest dose used for a single injection was 2 c.c. A dose not exceeding 1 c.c. is probably the most satisfactory. The intervals of the turpentine administration varied from one every two days to one injection a week. Injections given twice weekly proved to be sufficient. The ages of the patients varied from one to 65 years.

The site of predilection for the injection is determined by a horizontal line drawn from the posterior axillary border and a line figured one to two fingers' breadth beneath the brim of the pelvic bone. At the intersection of these two lines the point of the needle strikes the periosteum easily, upon which the injection is made. Besides the usual antiseptics no other precautions are necessary.

Some authors warned against the injections on account of the danger of aseptic abscesses. The majority of these complications, however, proved to be due to a faulty technique; injecting into the subcutaneous tissue for instance, or using impure emulsions. In the many hundreds of injections which we have administered, with the exception of a few cases, no particular pain was experienced, except numbness and stiffness of the leg, lasting from a few minutes to a few hours. Practically no sign of infiltration and no general reaction could be observed.

An analysis of the results obtained in 120 of our patients suffering from various skin and genito-urinary affections leads to the following conclusions:

Lupus erythematosus and *rosacea*, owing to their chronic character, did not permit of a final estimate. Further observations will be required before passing a final judgment.

Psoriasis proved rebellious to this treatment. Not a single lesion cleared up, and despite numerous injections new lesions appeared.

Similar experience can be reported in a case of *pemphigus*. After two injections the patient refused further treatment, complaining of aggravation of the disease accompanied by severe itching. We cannot, however, draw definite conclusions, until a larger number of cases will be observed.

Lesions of *impetigo contagiosa*, the crustaceous as well as the bullous type, cleared up quickly after one to two injections with no local treatment, but new lesions appeared in spite of the injections.

In *folliculitis barbae* the optimism of various authors does not seem justified. It seems to act exactly as do the vaccines. Of four cases treated with injections, one patient did not show the slightest improvement, two exhibited temporary relief, and only one case of a rather superficial type cleared up with no relapse for several weeks.

More or less good results have been observed in *furunculosis, pyodermia,* and *suppuration of the sweat glands.* In connection with furunculosis the following case is most instructive. When first seen the patient, a young anemic girl, presented a furuncle of the cheek, the size of a plum. Following the first injection the inflammatory process subsided in a few days, and an indolent pea-sized area was all that remained of the former lesion. One week later, however, there was a recurrence with intense inflammation of the surrounding tissue. This seems to indicate, as already pointed out, that turpentine affects the secondary products of the inflammation rather than the causative factor.

In *tineas,* the superficial, and particularly the deep type, turpentine proved of assistance in asso-

ciation with local treatment. Cases treated with turpentine and 3 to 5 per cent resorcin paste healed quicker than with other methods of routine treatment, *x*-ray excepted.

Good results have been obtained in some cases of *acne*. Deep seated, indolent, small abscesses of *acne indurata* yielded readily, and a few injections caused complete involution of the process. No local treatment of any character was employed in these cases. The products of suppuration were resorbed, but new lesions appeared in some of the cases, which as a rule subsided on further treatment.

As an example may be cited in the patient, T. A., female, 21 years old, who was under observation since 1917—a period of four years. Diagnosis: acne indurata. Routine treatment followed up, off and on, proved of little value. Immediately prior to treatment with turpentine her face was covered with many pustules, small abscesses, and deep seated purplish tubercles scattered over chin and cheeks. Two injections were followed by marked improvement, as exhibited by the fact that most of the old-standing lesions were involuted, but then there appeared a few new lesions. With seven injections the process was practically healed, and thus far there has been no recurrence.

Not so striking have been the results in the superficial type of *acne simplex*. The papules and small pustular lesions proved much more resistant than those in acne indurata, some of the cases showing little improvement.

The most satisfactory results have been noted in *ulcera cruris*. Several cases, which had been for a number of years subjected to various methods of treatment without lasting benefit, have improved on turpentine injections in a short period of time. Some of them presented inveterate ulcers with unclean bases and sclerosed borders; others were associated with weeping eczema, covering the lower and middle thirds of the leg. All these types showed marked improvement, with the exception of ulcerations in a case of acrodermatitis atrophicans. In the majority, a single injection was followed by a clearing of the base of the ulcer, and by a springing up of new granulations, which with continued treatment ultimately covered the entire surface.

No less remarkable has been the improvement of the subjective symptoms. Pain and itching, accompanying the progressing disease, disappeared with the first injection in most instances. This was particularly noticeable in one patient who was hardly able to move his leg prior to this treatment, and who was enabled to get about without discomfort a day after the injection had been administered. In all cases a certain euphoria was undeniable. At most 7 to 10 injections proved to be sufficient for a cure, so far as one can speak of a cure in this chronic and recurrent affection.

In the *urticaria group*, including *lichen urticatus* and *prurigo mitis*, and in the so-called neurodermites the results are not uniform. Certain individual and constitutional factors influencing the course of treatment seem to play a more important role in these cases than in any of the other skin affections.

A case of a generalized *lichen urticatus*, suffering for years from that disease, was very much benefited. But in general the disappointments were as numerous as the apparent successes. The same may be said in reference to *prurigo mitis* in children.

The *eczema* group, except a drying up effect on weeping and impetiginous lesions, did not encourage further trial.

A case of generalized *dermatitis venenata* was cured with four injections without local applications.

In *genito-urinary* diseases turpentine deserves a prominent place as a therapeutic agent. In acute anterior urethritis a few injections given at intervals of two days sufficed to check the discharge almost entirely, and thus made the use of local remedies in acute inflammatory conditions of the urethra a comparatively easy task; but no direct effect whatsoever was noted upon the gonococci. In chronic gonorrhea it proved of little value.

Among other genito-urinary diseases, *epididymitis* was very favorably influenced. The reaction was prompt and the patients felt noticeable relief 6 to 7 hours after the injection.

A case which is most instructive in this regard, is that of patient C. T., age 20, with no history of previous infection, who contracted gonorrhea, and six weeks later developed a right-sided epididymitis about the size of a fist with the minor globus adherent to the scrotum. Urethral discharge was positive for gonoccoci. Two days following a single injection, the intense inflammation and tenderness subsided, the swelling was reduced by one half, and the epididymis was freed from adhesions. It required, however, a longer period for a total cure. In chronic epididymitis also turpentine proved of value.

Striking results have been obtained in a case of bilateral *bubo* complicating chancroid. Within *24* hours following a single injection the threatening suppuration was averted, all pain stopped, and the swelling subsided rapidly.

Similar experience has been noted in *gonorrheal lymphadenitis*.

Conclusions.—1. Injections of turpentine act on disease by exerting a stimulating effect on the general vitality of the system.

2. Although not enthusiasts, our experience leads us to the conclusion that the injections of turpentine are valuable in the treatment of pyogenic infections of the skin, and in gonorrhea.

3. Furthermore, this remedy was found useful in acute inflammatory affections of the skin as well as in chronic exudative lesions.

4. The best results were noted in ulcers of the leg, and in epididymitis.

The writer wishes to express his thanks to Drs. Herman Goldenberg, Alphonse A. Wren, and especially Louis Chargin for their valuable suggestions and cooperation in connection with this work; and to Dr. Ph. B. Bregman for his assistance in the course of the study.

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CASES OF SO-CALLED TROPICAL GRANULOMA OBSERVED IN KINGS COUNTY HOSPITAL.*

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TROPICAL granuloma, variously called *granuloma tropicum, granuloma pudenda, granuloma venereum,* ulcerating granuloma of the groin, etc., etc., has been reported from different parts of the world, but it is more commonly seen in the subtropical and tropical countries where it is endemic, as India, the West Indies, Central America and tropical South America. It is unfortunate that the malady has not a more descriptive name, *granuloma pudenda, inguinale,* or *venereum* are not suitable, for the lesions may occur anywhere about the pubic region, and it is not proved that the disease is confined exclusively to the tropics.

The name we have chosen for the title of our article is not suitable in this instance, for neither of the patients had ever been in the tropics nor out of the United States, although it is possible that the woman might have been infected through promiscuous intercourse, and the man's occupation (longshoreman) would have thrown him with those from whom he might have acquired the disease. We are inclined to think that personal uncleanliness has a great deal to do with the etiology: the lowered resistance of the skin caused by dirt could easily put the tissues in a receptive state for the propagation of the special organism.

The disease was first accurately noted by MacLeod, in India, in 1882. In 1896 Conyers and Daniels, as a result of their studies of tropical ulcers observed in British Guiana, recognized it as a clinical entity. Since then many cases have been reported from various parts of the world and great advances have been made in the etiology, pathology, and treatment of the disease. The first authentic instance of the occurrence of this disease in the United States was reported by Grindon in a paper read before the American Dermatological Association in 1912 (*Journal of Cutaneous Diseases,* Vol. 31, p. 236, 1913). In 1920 Symmers and Frost reported two cases observed in Bellevue Hospital, New York (*Journal of the American Medical Association,* Vol. 74, p. 1304, 1920). A year later Campbell (*Journal of the American Medical Association,* Vol. 76, p. 648, 1921) reported two additional cases from the same hospital, and adds further observations on one of Symmers' cases. At the May meeting of the Section on Dermatology and Syphilis of the New York Academy of Medicine, Rosen (Granuloma Inguinale, presentation of a case, *Archives of Dermatology and Syphilis,* Vol. 4, No. 4, p. 272, Aug., 1921) showed a patient, a mulatto, a native of the United States, suffering from an ulcerating new growth in the groin. In spite of practically negative findings, the members present considered it to be clinically *granuloma inguinale.*

A review of the literature of the subject fails to reveal any more cases having their origin strictly in the United States, although Grindon, in the article quoted above, says that the late Robert W. Taylor claims to have seen this disease in New York City. In order to make the list complete we beg the privilege of reporting two undoubted cases occurring in native North Americans, seen in Kings County Hospital, Brooklyn, N. Y.

CASE I.—Mrs. A. B., aged 18, native of the United States; family history negative, except that one brother is a sailor; past history, had the usual diseases of childhood; no other illness; menstruation began at fifteen and had always been regular; no menstrual disorders. Personal history: Patient admits having had promiscuous sexual intercourse; shortly before her marriage she had intercourse with a South American sailor. She has been married three months; her husband is a Russian who has never been in the tropics and is, apparently, perfectly healthy; his Wassermann was negative. Present illness: About one month after her marriage and six weeks after her intercourse with the sailor, a small red papule developed on the left labia minora, which she scratched until it bled; following this a small wartlike growth appeared on the site of the papule; at first the color of the growth was pale pink, but as it grew larger the top became red and reddish brown; other papular wartlike growths appeared around the primary one and then the condition spread until it involved the entire vulva. Physical examination: The patient is a well developed and well nourished white female; the general physical examination, except for the growth on the vulva, is negative. Covering the external genitalia and extending for about one inch into the vagina is a bright red, ulcerating, papillomatous growth; the base and body of the growth is a pale, pinkish white; the top is bright red and ulcerating. The vaginal opening is almost closed and a small depression marks the site of the opening of the urethra; the outlines of the labia are lost in the folds of the growth; the entire growth is moist, although there is no urethral nor vaginal discharge; the odor from the mass is extremely foul; the inguinal glands on both sides are slightly enlarged. Urine analysis, negative; gonococcus and Wassermann, negative. The blood never was positive nor was there ever any cutaneous eruption. A section of the tumor was removed for examination. A tentative diagnosis of *tropical granuloma* was made, and the patient was put on the following treatment: Locally a one to one thousand solution of potassium permanganate as a douche, and internally gradually increasing doses of tartar emetic; shortly after she commenced treatment the condition began to improve, the moisture grew less, the foul odor disappeared, the ulceration began to heal and the tumor grew smaller; later the shrunken growth was removed surgically; the patient made an uninterrupted recovery and left the hospital apparently cured.

Laboratory report.—Several small pieces of tissue, vascular and of a papillomatous type, were excised from an extensive vulval growth; two of these were washed in several change of sterile saline solution, well macerated on a sterile plate and cultured in ascitic veal agar, both aerobically and anaerobically; the other pieces were placed in a four per cent. formalin solution for section. Smears made from the macerated tissue and stained by various methods showed the following bacteria: Unidentified Gram negative bacilli, staphylococci, unidentified Gram negative cocci, occasional acid-fast bacilli; occasional spirochetes resembling *S. refringens* and a short Gram positive bacilli; coccoid bacilli occurring in diplo-forms. All cultures showed a marked confluent viscid growth at the end of twenty-four hours, were of a dirty greyish white color, and possessed an odor peculiar to *Bacillus proteus.* Smears from the cultures showed Gram positive cocci (staphylococcus), Gram negative bacilli (proteus) and a Gram positive bacilli, short, almost coccoid, with no capsule. With Giemsa stain no capsules were ever demonstrated. Attempts at isolating the short Gram positive bacilli were unsuccessful. Subcultures were never pure.

Histological Examination.—Specimens showed a papillated structure; marked papillomatous hyperplasia of the epidermis and a granulomatosis of the derma, par-

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ticularly of the pars papillaris. In general the stratum corneum is present and well preserved, except in some areas where ulceration has occurred, and the layer is replaced by a hemorrhagic and purulent exudate. The stratum granulosum is practically absent. The hyperplasia of the epidermis, already noted, is confined to the stratum mucosum, the component cells being swollen and, in a few instances, showing mitotic figures. The pars papillaris exhibits narrow and somewhat tortuous prolongations between the interpapillary processes of the epidermis. It is well vascularized and infiltrated with small round plasma and occasional polynuclear cells. The densest infiltration, however, occurs in the lower portion of the pars papillaris; here are found nests and aggregations of small polyblasts, including small round plasma and eosinophilic cells in close proximity to the blood vessels. In some areas these infiltrating cells are in perivascular positions, although not as typical as those encountered in luetic granuloma. The pars reticularis reveals interlacing fibrils of connective tissue, many of which are swollen or undergoing some degenerative change. In some areas there is new formed scar tissue.

Sections stained for bacteria show the presence of Gram positive cocci, short Gram positive coccoid bacilli, and occasional spirilla and spirochetes in the exudate from the ulcerated portions of the epidermis. No bacteria are demonstrated in the corium proper by any of the staining methods used, which included the Gram-Weigert, Thionin, Ziehl-Neilsen, Giemsa, and Levaditi.

CASE II.—W. G., aged 29, Negro, born in the United States, was admitted to the Kings County Hospital, December 3, 1916. His personal history states that he had never been sick except for two attacks of fever, type or duration not known; had gonorrhea when he was twenty years old; had had an ulcerating sore on the foreskin six years ago, but had never noticed any cutaneous eruption. Knows nothing of the health history of parents or brothers and sisters. About a year before entering the hospital he noticed a "pimple" on the pubes, just above and slightly to the right of the penis; this papule gradually enlarged and ulcerated, the ulcer spread slowly until the pubes, inguinal regions, and the right side of the scrotum was involved.

Hospital History.—A well formed and well nourished negro; temperature normal; physical and urine examinations negative; complains of no pain, only a slight discomfort from the ulcerating area. In the groin, about the genitals, over the pubes, the right inguinal space, the right side of the scrotum, and the root of the penis, which is edematous and enlarged, there is a granulomatous ulcerating surface, pinkish white in color; the margins of the ulcer are nodular and gyrate in outline; there is also an ulcerating nodule about the size of a filbert on the foreskin; this was removed surgically; examination of the nodule for *Treponema pallida* was negative. Wassermann test with cholesterinized antigen, doubtful one plus. A tentative diagnosis of syphilis was made and he was given a provocative dose of arsphenamine; two days later the blood was three plus with cholesterinized antigen. On January, 17, 1917, he had an acute orchitis, which gradually subsided, leaving the testicle slightly enlarged. There was no urethral discharge and gonococci were never found. Between December 15, 1916, and February 23, 1917, he received eight full doses of arsphenamine and injections of salicylate of mercury in doses varying from one and one-half to two grains. After the last dose of the arsphenamine the urine showed evidences of kidney irritation and all medication was suspended for six weeks. The inguinal ulceration was first dressed with mercurial ointment; later this was changed to wet compresses of one to five thousand potassium permanganate. The center of the diseased area over the pubes began to heal, but the margins had slowly extended; the margins were curetted and cauterized with actual cautery. At first all of the diseased area seemed to be healing, but after a short time the scar broke down and ulcerated, especially at the borders. The blood was one plus doubtful on January 28, 1917, and negative two months later.

In June, 1918, a second course of arsphenamine was begun; six doses were given and the Wassermann that had been two plus became negative. The ulceration over the pubes was healed, but the lesion had extended over the perineum and along the inner surfaces of the thighs and over the penis. He left the hospital in November, 1918, and was readmitted in March, 1919, suffering from pneumonia which ran the usual course to recovery. The local lesion was about the same as when he left the hospital. After his recovery from pneumonia he received one dose of arsphenamine. A careful examination of the lesion at that time aroused the suspicion of tropical granuloma; antimony by the mouth was prescribed, but he left the hospital before the last remedy had had time to have any effect.

He was readmitted to the hospital August, 1919. The local lesion had extended over the perineum and over the opposing surfaces of the buttocks; except for a border the sixteenth of an inch wide the pubic lesion had healed into a thin white scar; the shaft of the penis was also scarred and the organ was enlarged—pseudo elephantiasis. He refused all treatment and left the hospital, but returned January, 1920. There was no marked change in the local lesion. During 1920 no systematic medication could be instituted because he was only intermittently in the hospital.

In June, 1921, he returned to the hospital and has remained there to date. The Wassermann was doubtful or negative, and has continued so ever since. The spinal fluid was always negative. The ulcerating borders were curetted and cauterized but failed to heal. He was then put upon antimony by mouth; the progress of the disease seems to be stayed and there are evidences of healing all over the lesion. Shortly after the patient entered the hospital the first time some of the tissue was examined microscopically.

Report—Subcutaneous tissue very dense, with areas of stratified squamous cells; the tissue is infiltrated with pus, lymphocytes, and plasma cells. Laboratory diagnosis: Syphilitic new growth.

Second Report, January, 1920.—Tissue from ulcerated lesion in groin; epidermis hyperplastic, of papillomatous character; true skin and subcutaneous tissue infiltrated with small and plasma cells and showing inflammatory changes. There were no cultures made at either of these examinations.

The last laboratory examination made in July, 1921, is as follows: Examination of tissue taken from an ulcerative lesion of the inguinal region. A portion was examined bacteriologically, the rest of the specimen was fixed in formalin for histological examination. Bacteriological examination: Direct smears from the specimen, stained by Gram's method, showed the following organisms: Gram positive diplococci, some of which, apparently, possess capsules; Gram negative coccoid bacilli, and staphylococci. Stained by Giemsa's method no spirochetes are demonstrated. Portions of the tissue were cultured both aerobically and anaerobically; examination of aerobic cultures by Gram's stain showed the predominance of staphylococci which gave varying reactions to the Gram method, some of them being positive and others (these in the majority) Gram negative; there were observed also a few Gram positive diplococci, a few short chain cocci, in general Gram negative in reaction, and many Gram positive spore-bearing bacilli. The Giemsa method of staining did not demonstrate capsule formation, and no spirochetes were observed. By the His method capsules were demonstrated. Anaerobic cultures showed a few isolated colonies within the substance of the medium; some of these colonies were fished out, smeared, and stained by the Gram method; the colonies showed the presence of Gram positive cocci, Gram negative cocci, and a few Gram negative coccoid bacilli which did not possess capsules.

Histopathological examination: Sections were stained by various methods, namely, routine hematoxylin-eosin method and by Giemsa, Gram-Weigert, Thionin, and Levaditi methods to demonstrate organisms. None of the latter methods disclosed the presence of any organisms within the derma; the Levaditi method was negative for spirochetes; the hematoxylin-eosin method showed the following pathological changes: The principal change observed in the epidermis consisted of a marked hyperplasia of the rete Malpighii; irregular tortuous prolongations extended downward into the pars papillaris of the derma. In the derma the following changes were observed: The pars papillaris showed moderate cellular infiltration, the cells being of the polyblastic type, and in areas replacement fibro-

sis had taken place; this layer was fairly well vascularized by small thin-walled capillaries; in the deeper portions of the pars papillaris, and particularly in the vicinity of the coil-gland ducts, were observed cellular infiltrations; the predominating type of cell was the plasma, although occasional eosinophiles and small round cells were encountered. The pars papillaris of the derma was somewhat edematous and consisted of interlacing fibers of connective tissue strands, many of which showed fraying; situated in the immediate vicinity of the blood vessels of this layer of the skin was likewise cellular infiltration, the type and character of cell being similar to that observed in the upper layer of the derma; no giant cells were seen nor were caseous areas in evidence.

Comparison of the clinical and microscopical findings in our cases and those of others is as follows: The best clinical description of the disease is, perhaps, that of Mansen (Tropical Medicine, Third Edition, p. 536). He says, "The disease commences, in the great majority of cases, in the groin as an insignificant, circumscribed, nodular thickening and elevation of the skin; the affected area being covered with a delicate, pinkish, easily rubbed off epithelium, excoriates readily, prone to bleed and break down, rarely ulcerating deeply. In its extension it exhibits a predilection for warm and moist surfaces, the fold between the scrotum and the thigh, the labia, and the flexures of the thighs. Its extension is slow.

Concurrently with peripheral extension a dense, contracting, uneven, readily broken down scar forms on the surface traveled over by the new growth, which constitutes the peripheral part of the diseased area.

In the male it may spread over the penis and involve the glands, the scrotum, and upper part of the thighs; in either sex it may spread to the pubes, over the perineum, and as far back as the coccyx.

The history and subsequent course of the disease in our cases closely conforms to Mansen's description, except that in the woman the growth at first was more papillomatous in character. Although, according to Pardo (*Journal of Cutaneous Diseases*, Vol. 4, p. 206), the papillomatous type has been observed by some. We were unable to cultivate the encapsulate bacilli described by Donovan (*Indian Medical Gazette*, xxxix, 414, 1905), but we did observe a Gram negative bacillus similar to that described by Flu (*Archives f. Schiffs u. Tropen Hygiene*, Beiheft 9, 1911). We also found Gram positive diploccoci; spirochetes of the refringens type were seen. Without carrying the comparison further we feel justified in considering both of our cases to be examples of tropical granuloma.

A Suspected Case.—Shortly after Case I had left the hospital a woman, aged 24, born in the United States, was admitted to the obstetrical division; she was eight months pregnant, first conception; upon examination an ulcerating tumor was found which involved nearly the entire vulva. She was transferred to our ward, where she was delivered of a healthy child at term. Clinically the vulvular growth resembled tropical granuloma, but the patient would not allow us to remove any of the growth for examination. Her Wassermann was always negative and she did not develop any eruption while in the hospital; we were unable to get a history of syphilis. She left the hospital at the end of her puerperal period, promising to return for treatment of the local lesion.

We agree with Campbell (*Journal of the American Medical Association*, Vol. lxxvi, No. 10, p. 64, 1921) that the disease is not uncommon in the United States, not endemic as in the tropics, but that it is being seen oftener and oftener here; perhaps the closer intermingling with the people from the West Indies may be a means of propagating the disease; there seem to be more cases occurring throughout the United States, especially in the large seaport cities, than the paucity of reports would lead one to suspect.

When a patient of the class in which this type of granuloma occurs presents himself or herself for treatment the diagnosis of syphilis is usually made without taking the pains to prove or disprove its correctness. Anyone who knows the clinical picture of syphilis should be able to differentiate this chronic and not especially troublesome new growth from the specific gummatous ulceration. The rapid spreading and painful ulceration of cancer is altogether different from the course of tropical granuloma. Tuberculosis of the genitalia is rare; one of us, after twenty-five years' experience, has seen only two undoubted cases out of a vast number of tumors and ulcerations of the genital regions. After a careful reading of the literature of ulcerating tumors of the pudenda we are led to believe that these granulomatous growths have often been seen, but not correctly diagnosed and, therefore, not reported.

In 1848 Huguier, in a brochure entitled "Memoire sur l'Esthiomene on Darte rongeaute de la Region Vulvo-anale," Paris, 1849, describes a number of ulcerating tumors of the female genitals, which he considered lupus. At least two of his cases, from the history of the onset and course of the lesion, might easily have been placed with the granulomas of non-syphilitic or tuberculous origin.

Dr. Isaac E. Taylor, in a paper read before the American Gynecological Society in 1880 (*Transactions American Gynecological Society*, Vol. 6, 1881), verifying Huguier's views of lupus of the female genitals, cites the histories of cases he has seen in New York that, from the clinical description, might easily have been examples of tropical granuloma.

In 1889 Robert W. Taylor, whose knowledge and perception of syphilis was unsurpassed, read a paper before the American Dermatological Association entitled "A Hitherto Undescribed Form of New Growth of the Vulva" (*American Journal of Medical Sciences*, Vol. xcix, p. 125, 1890), and in a subsequent paper (*New York Medical Journal*, Vol. 51, p. I, Jan. 4, 1890) describes a number of cases that had many features in common with what is now called tropical granuloma. The initial lesion was a soft nodule that broke down and ulcerated; the course of the ulceration was slow; all attempts at cure failed. Taylor did not consider these special growths to be either syphilitic or tuberculous, but believed them to be some unknown and hitherto undescribed form of new growth. The histopathology, as given in this article, is somewhat similar to that of the cases of tropical granuloma recently reported. Later Taylor concluded that he

had seen cases of so-called tropical granuloma in New York City.

After searching the literature and finding the references cited above we looked up the records from the syphilitic and skin ward of Kings County Hospital for the last twenty-five years. We found three histories of ulcerating granulomatous growths about the genitals, which bore a close resemblance to the disease under discussion. Two were women and one male; the man and one woman were negroes; all were natives of the United States and had never been in the tropics; they were from the underworld, the women were prostitutes, and the man a profligate with a criminal history. In each instance the onset and course of the disease was similar; the lesion began as a soft nodule situated in the vulva of the women and in the groin of the man; the nodule soon broke down and ulcerated; the ulceration extended until all of the vulva and perineum was involved. In the man the ulceration spread over both groins, extending to the scrotum and perineum; the center of the lesion tended to cicatrization, but the scar eventually broke down and ulcerated. A diagnosis of lues was made from a rather indefinite history of syphilitic infection; as these cases occurred before the discovery of either the spirochete or the Wassermann test, the diagnosis did not have the laboratory confirmation. One of the women died from inanition, the others left the hospital uncured and were lost sight of.

Summary.—As this disease occurs in different parts of the world, both in the temperate and torrid zones, it is safe to assume that it is not necessarily confined to the tropical and subtropical regions.

It is also probable that many cases of this disease have been seen by various physicians, but have not been recognized because the most natural diagnosis of new growths occurring in this part of the body would be syphilis or some other well-known ulcerating venereal disease.

As a great many of the observed cases had neither clinical nor sereological evidences of syphilis, it can be safely concluded that the disease is not caused by the *Treponema pallidum*, but by some other organism, in all probability the one that was discovered and described by Donovan.

Although the bacterial findings of various observers are not uniform, it can be assumed that the specific Donovan bodies were present in all cases, but owing to some faulty technique they were not always seen.

Antiluetic remedies have no effect upon the progress of the disease, neither has surgery alone ever made a permanent cure.

The only remedy that has any effect on the disease is antimony, given either by the mouth or, preferably, intravenously.

We wish to extend our thanks to Dr. Hala for his kindness in preparing the microscopical specimens and for the laboratory reports.

NOTE.—Since the above article was prepared Dr. Kenneth M. Lynch of Charleston, S. C., *The Journal of the American Medical Association* has published histories of nine cases observed in Charleston, and also comments upon a paper by Driscoll entitled "Erosive Vulvitis," published in the *Archives of Dermatology and Syphilis*, vol. 1, No. 170, February, 1920.

47 HALSEY STREET.

BORDERLINE ENDOCRINE CASES.

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INFORMATION concerning the so-called "endocrine case" occupies considerable space in the books on the internal secretions, the newer systems of medicine, and a great many articles in current medical literature. The medical profession still holds the impression that the chief diseases definitely related to the ductless glands are myxedema, hyperthyroidism, acromegalia, Addison's disease, Froehlich's disease, tetany, and so on. These are the obvious endocrine diseases. They are the text-book conditions quite thoroughly studied, fairly easily diagnosed, and not so easily treated.

If endocrinology consisted in the study of these diseases and the development of knowledge regarding their treatment it would soon cease to be a new science and certainly would lose the interest that the medical profession has in it at the present time.

As a matter of fact, the study of this kind of endocrinology is not so very practical nor is it so especially profitable for two chief reasons: First, well-defined endocrine diseases are not really common, and, second, when they are discovered many of them are not very satisfactorily treated.

The class of disturbances of internal secretion which I have chosen to call "borderline endocrine cases," on the other hand, is a very comprehensive as well as an extensive class. It involves all of the functional conditions of varied origin into which the endocrine glands have been drawn as factors—causative and resultant; and in the study and treatment of which a knowledge of internal secretory physiology and relations and of organotherapeutic regulation opens a very much broader field of opportunity to the practising physician.

It seems that emphasis still is needed in order to remove from the minds of some physicians an erroneous impression that the study of endocrinology means the study of these decided, clear-cut, text-book endocrine diseases such as the ones mentioned in the first paragraph, and replacing it with an appreciation of the tremendous influence that the ductless glands play upon every reaction of the body to disease as well as the regulation of physiological functions which maintain health.

The borderline endocrine disorders are far the more numerous. They necessarily must include certain aspects of all of the acute infectious diseases, because the endocrine glands unquestionably are influenced by the conditions present in these diseases, and their undue stimulation causes functional disorder in the normal activities of these organs. The thyroid gland is expected to react to infections and toxemia, for the thyroid has been shown to be a very important factor in "the immunizing response of the body" and is known to be equally concerned in what is known as "the detoxicating mechanism." In other words, whenever there is an acute infectious disease consideration should be given to a possible thyroid aspect, and especially to the possible indirect influence upon the organism, either during the disease or following it, through a presumed derangement in the thyroid functioning.

There is also an equally important adrenal aspect to all such diseases because the adrenal glands, serving as they do to initiate the cardiovascular and sympathetic response of the body to infections and toxemias, necessarily must be stimulated by the toxic products of the infection or infectious disease. If the adrenal glands were not thus affected the body would speedily be overcome by the poisoning, but since the adrenals are immediately and subtly concerned in all of these syndromes, we find increased circulation, increased sympathetic tonicity, increased chemistry, and a general increase in the defensive activities of the body. Naturally, if the toxemia is a very serious one or, even more important, if it is not so serious but is prolonged over a long period of time, this constant stimulation of these glands doubtless will wear them out at least functionally, and as a result of the over-stimulation we have depletion.

Toxemias of other origin, including alimentary toxemia, the ingestion of toxin-containing foods (including coffee, easily putrefiable animal foods, and especially certain protein-bearing foods to which some individuals occasionally show an unusual susceptibility) exert an identical effect upon the endocrine glands, especially the thyroid and adrenals, as we expect to find from other forms of poisoning. Consequently, the frequency of endocrine dysfunction of the type under discussion is extended very materially indeed.

Still another very important aspect deserves brief mention. It has been shown both by physiological experiments and by clinical observation that emotional states are related to endocrine function, and that hyperemotivity, including the changes in the mental balance related to fear, rage, excitement, worry, and introspection exert an influence upon these selfsame glands. The French have even gone so far as to call the thyroid *"la glande de l'émotion,"* and Cannon and his associates definitely connected the adrenals with both the fear syndrome and the fatigue syndrome.

If, then, it is true that mental states such as have been referred to act upon the organism through certain of the glands of internal secretion, surely we have again extended very materially the number of disorders in which there is an endocrine factor worthy of consideration.

No mention has been made yet of the early but none the less important changes in endocrine activity based, perhaps, upon heredity, a changed cellular environment, or the chronic toxemia such as one expects to accompany either hereditary or acquired lues. Here circumstances have either changed some of the endocrine glands structurally or, at least, have burdened them unduly, have changed their duties or have played them out. In some instances, of course, these glands "have never had a chance" and fail to accomplish their intended duties, with the result that the individual unfortunate enough to have a dyscrinism of this character does not develop, and as a result is called a backward child, a defective child, or even an idiot.

The same fundamental principle applies in the relations that other functional endocrine disturbances bear to a long list of functional nervous diseases. The sympathetic nervous system in some way is connected with the endocrine glands. Some believe that the endocrine glands regulate the sympathetic mechanism directly; others contend that if the endocrine glands are not functioning normally, conditions are allowed to obtain in the body which cause an excessive stimulation of the sympathetic. In other words, the unoxidized poisons are permitted to remain in the organism, thereby unduly stimulating the sympathetics. No matter whether the relation of the endocrines to sympathetic disorders is one of cause to effect, or vice versa, there is, indeed, an undoubted relation, and, consequently, another large addition to the borderline endocrine cases must be the list of neurasthenias, neuroses, and psychoses in which there is sometimes no discernible connection between the disease itself and some previous cause. As a matter of fact, there is enough in the literature to-day to indicate that the most hopeful therapeutic aspect of many neuroses is the endocrine aspect, and a large number of physicians have come to believe that when they are confronted with a neurosis about which they can acquire no definite knowledge — when they are literally "stumped"—that sometimes the most reasonable thing to do is to begin to study the endocrine mechanism of the individual, to attempt to determine whether there is not some early and comparatively insignificant endocrine disturbance in order that it may be treated in the unscientific hope that the modification of this presumed dyscrinism may make some change for the better upon the complications, the relations and origin of which are so poorly understood. Without a doubt clinical experiences repeatedly have shown that all shades of nervous disorders, from plain, ordinary neurasthenia to insanity, are, or have been, related to the ductless glands and their functional derangement.

In some interesting correspondence with a physician who is devoting his entire time to mental and nervous troubles (he was formerly superintendent of a large State insane asylum) he makes the following interesting remarks:

"You don't have to prove to me at my age that I know more about insanity than some others. I am willing to admit it! But when it comes to those endocrines, I want to learn more. Let me say that for the last few years I have been using them. At first I was induced by the literature to use thyroid alone, and ovarian substance alone, or corpus luteum alone. Result: very little, if any, satisfaction. But since I have been using the pluriglandular formulas I have been running on high; in fact, am inclined to apply the brakes for fear my enthusiasm will run away with me. My results have been so much greater in treating neuroses and psychoses this way than by the old methods that I am inclined to be content, but when I get so much better speed than I ever did before, I realize that I have hit upon some new power, and now I want to develop it all I can, so am submitting a couple of cases to you for your judgment and whatever suggestions you feel will help. . . ."

This reminds me of another letter recently received from which I will quote a few paragraphs:

"My son has suffered from so-called dementia præcox for ten years. Why—the doctors do not

know. He has been at the ——— Clinic, at the ———, and to our two sanitariums here, one at ——— and the other at ———, where he still frequently stays. We have spent much money upon him, but without any improvement at all. Always a rather visionary child, he began by having hallucinations, to brood over life and death. It was all very gradual. Two years ago he began to have periods lasting sometimes for more than two weeks of absolute insanity. His mind went from him, though he always seemed to know a little, as though all the cells were not affected. Since taking the pituitary extract these spells have left him and he is at times almost normal. I do not expect impossibilities, but he seems to be growing better every day. Dr. ———, his present doctor, is dumfounded at the change in him. He has just passed his twenty-seventh birthday. Ten years given up to useless suffering both for him and me. I do not understand why doctors do not keep up with the times and try everything to make these poor creatures better. I write with a very full heart, and thank you over and over again for my little bit of hope."

The foregoing, from a physician's sister, encourages us to think of the large number of functional psychoses as being on the endocrine borderline.

Some years ago I made some remarks in a publication in regard to the frequency of ductless glandular disorders which aroused some criticism which I welcomed as a veiled compliment. I still meet individuals who contend that "Harrower sees a ductless glandular trouble in every case," and I confess that when I was in Paris ten years ago the same thing was said of Leopold Levi, for I recall very well the remark of a prominent physician who was talking with me about my hobby. He said, "Leopold Levi always considers every case that comes to him as one of dysthyroidism, and no matter whether they have rheumatism or sterility he can always prove that the thyroid is at fault." Now it *is* a matter of fact and it has been proved clinically many times that both rheumatism and sterility may, indeed, have a very decided thyroid aspect, and so when anybody says that those of us who choose to be on the firing line of practical endocrinology find the ductless glands involved in far too many conditions, and hint that there is an ulterior motive in our interest, we can show them from the literature and, better still, from our own clinical experiences which, by the way, are by no means limited in number or locality, *that the consideration of the endocrine aspects of any given case may, indeed, uncover a lead which will direct the physician in such a manner that he will have better control over the condition confronting him than in any other way.*

The borderline endocrine disorders, then, involve all those conditions of a toxic, bacterial, or emotional character in which the endocrine glands may be over-stimulated, thus causing their functional playing out or a compensatory over-activity on the part of organs which under normal circumstances are expected to cooperate with their related endocrine fellows.

Thus the borderline endocrine disorders are innumerable. Frankly, I have come to believe that practically all of the gamut of troubles which come to the average physician's office from day to day may have a sufficiently important endocrine aspect to warrant his giving special study to this phase of these cases, and whenever a suitable organotherapy reasonably may be directed at the presumed dyscrinism, the clinical results in a course of a few weeks may give us additional knowledge of diagnostic value which otherwise might never have been gained.

In other words, endocrinology is a much more comprehensive and practical science than some would lead us to believe, and organotherapy is of a very much more prospective value than its textbook therapeutic possibilities might indicate.

CALCIUM LACTOPHOSPHATE IN CYCLIC VOMITING.

By CRAWFORD R. GREEN, A.B., M.D.,

TROY, N. Y.

DURING the summer of 1919 I encountered a patient about fifty years of age who had been given calcium lactophosphate as part of the treatment for an obscure metabolic disorder. This patient had suffered from attacks of cyclic vomiting in childhood, and all her life since puberty she had suffered from severe attacks of migraine. When I first saw her she had been taking calcium lactophosphate for several months, during which time there had been a complete cessation of the attacks of migraine—a relief which she had not previously experienced for many years.

There seems to be an association between cyclic vomiting and migraine, and it is stated by most observers that the child who is a cyclic vomiter has the unhappy outlook of becoming a subject of migraine in adult life. At the time the patient who was taking calcium lactophosphate came under my observation, I was treating a particularly severe attack of cyclic vomiting in a boy eight years old, and I decided to give him calcium lactophosphate in the intervals between his attacks, reasoning that if there were a close association between the causation of cyclic vomiting and migraine there might be some similar correlation in their treatment.

This boy had first come under my care about one year previously at the age of seven, giving a history of having suffered from cyclic vomiting since the age of two. These attacks had occurred at intervals of one to three months, with a single exception of a period at the age of four when he did not have an attack for nine months. During the year he had been under my care, he had had attacks on an average of once in two months. These attacks lasted regularly for five days, during which time there was almost constant nausea and repeated vomiting of large quantities of bile. Absolutely nothing could be retained by mouth—no nourishment, no water, no medication. A competent nurse was employed at the onset of each attack to give salines and 5 per cent. dextrose by rectum. Every accepted method of treatment was tried without any effect whatever, and no relief was ever obtained until the attack had worn itself out on the fifth day. On two occasions the child was in such a seriously exhausted condition that we had a hard struggle to sustain life. In March, 1920, I began

the administration of calcium lactophosphate, two grains three times daily. This treatment has been continued without interruption to this date, September, 1921. There has been no attack since the beginning of treatment.

On September 16, 1920, a girl of eight was brought to me with a history of having had attacks of cyclic vomiting every month or two for the previous three years. These attacks each lasted about three days, and the condition had been diagnosed and treated by able physicians. No treatment had been of the slightest benefit. I prescribed calcium lactophosphate, two grains three times daily. The patient has reported regularly each month during the past year, and there has been no recurrence of the trouble.

At present I have two other severe typical cases under treatment with calcium lactophosphate, but sufficient time has not elapsed to warrant reporting them.

I am aware that two cases supply very meager material from which to draw conclusions regarding any therapeutic procedure, but I feel that even a suggestion toward the relief of such an intractable and distressing condition is well worth consideration. I am therefore recording these two cases merely with the hope that they may excite the interest of someone who is in touch with sufficient clinical material to prove or disprove the value of the remedy.

I am further encouraged in the possibilities of success with calcium lactophosphate by the fact that a few adult victims of migraine for whom I have prescribed calcium lactophosphate, five grains three times daily, taken over a considerable period, have received marked relief. Calcium, usually in the form of the lactate, is not uncommonly employed for the relief of recurrent headaches in individuals of the so-called lymphatic type; but the cases to which I refer, in which I have successfully used the lactophosphate are cases of periodic attacks of "sick headache," or migraine of the severe type that ordinarily resists every attempt toward permanent relief.

25 Second Street.

UNEXPLAINED CONSTITUTIONAL SYMPTOMS CAUSED BY FOREIGN BODY IN THE TISSUES.

By MAX J. SCHROEDER, M.D.,

NEW YORK.

THE facts in the case to be presented illustrate the necessity of a complete physical examination. They also emphasize the elusiveness of foreign bodies.

History.—C. K. when 15 months old playing around a tray suddenly let out a yell, was strangling, and grew cyanotic. The mother ran to her rescue, looked into the child's mouth just in time to see some safety-pins disappearing. In the struggle to remove them she pushed them in still further. After a few seconds the child regained its breath. The mother immediately took the child to one of the leading hospitals of the city of New York.

I have recently personally investigated the history and physical examination of the child when at the hospital and found that the child stayed there about 5 days during which time various *x*-ray plates of the gastrointestinal tract were taken. The authorities arriving at no diagnosis, the child was discharged.

It was from that time that the child who was always in a rosy and pink condition, began to develop a very obnoxious odor in the breath, had a poor appetite, and enjoyed very little sleep. This condition resulted in a retardation of development and growth. The mother had the child examined by various physicians, giving the full history; but none of them arrived at any definite diagnosis, assuring the mother if the child had ever swallowed any safety-pins they must be out long ago.

About 14 months after the safety-pins had been swallowed, C. K. took sick, the doctor in charge pronounced the case to be one of anterior poliomyelitis.

Physical Examination.—It was on the 30th of August, 1920, that C. K., then being almost 3 years old, for the first time came under my care. I examined the child and was impressed by the emaciation, very repulsive breath; the temperature when taken per rectum was found to be 103.5°; pulse, 130; heart and lungs were negative. Examining the oral cavity my attention was immediately arrested by a slight elevation of the posterior wall of the pharynx a little above the natural position of the soft palate. Upon closer scrutiny, I could see a glistening body. After due aseptic precautions, I incised this elevation and was amazed to withdraw 3 medium sized safety-pins, rusty and greenish looking, followed by a gush of thick pus.

After ordinary attention and care to this cavity for about 3 weeks, it completely closed. The child was beginning to lose the nasty odor from its breath, gaining weight, sleeping better, and turning brighter. Today the child looks like any average girl of her age.

Comments.—1. The primary landing of the safety-pins is conjectural; it is permissible to assume that they first landed in the stomach but the child later vomited them up. 2. In the course of vomiting they were halted in the pharynx, where they lodged. 3. In the event that foreign bodies have been swallowed it emphasizes the necessity to *x*-ray the head as well as the gastrointestinal tract. 4. It is plausible to believe that the anterior poliomyelitis arose from the contiguity of infection.

416 East Sixth Street.

Medicolegal Notes.

In Action to Compel Board of Examiners to Approve Medical School, Evidence as to Course of Instruction Is Admissible.—In an action brought in accordance with section 10½ of the California Medical Practice Act, to compel the State Board of Medical Examiners to approve the plaintiff as a school whose graduates are entitled to examination before the board of physician and surgeon certificates, and to admit the graduates thereof to examination for those certificates, it is held that evidence as to the quality of the course of instruction is admissible as bearing on the question of whether the school had complied with the requirements of section 10, and its exclusion would be reversible error, section 10½ allowing the board to consider the quality of the course of instruction.—College of Osteopathic Physicians and Surgeons of Los Angeles v. Board of Medical Examiners (Cal.) 199 Pac. 1093.

Inference of Negligence Not to Be Inferred from X-Ray Burn Alone.—In an action against a physician for injuries caused by an *x*-ray machine used in the treatment of disease of the skin, where the question was as to the safety of the machine, and not as to its efficiency, and there was no testimony that it was not safe when properly used, but, on the contrary, all the experts testified that it was all right, so far as safety was concerned, when used with proper safety devices, the defendant was not required to submit to the jury any issue involved in the exercise of care and knowledge in the selection of a machine. It was also held that in the absence of evidence from which, without speculating, the jury could draw a reasonable inference from the mere fact that the patient was burned by the rays from the machine, the jury should not be permitted to infer negligence from the occurrence alone.—Street v. Hodgson, Maryland Court of Appeals, 115 Atl. 27.

MEDICAL RECORD.

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THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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REPORT OF THE SURGEON GENERAL OF THE UNITED STATES NAVY.

THE vanishing lure of the sea has continued to cause difficulty to the Bureau of Medicine and Surgery of the United States Navy during the fiscal year ending June 30, 1921, the activities of which are recorded by the Surgeon General in his annual report to the Secretary of the Navy. We noted this same difficulty in the report for 1920. Despite the added educational and other advantages offered, the department has experienced difficulty in securing acquisitions to the commissioned personnel, as well as to the Nurse Corps and Hospital Corps. The especially enticing opportunities in civil life which present themselves to recent graduates of medical, dental, and pharmaceutical colleges and of training schools for nurses, are offered as the explanation of this state of affairs. Not only does the Navy not interest the recent graduates, it seems, but even the regular service appears to be attracted by the glitter of civil life gold, professional prospects, or what not. At any rate, since the signing of the armistice there have been 268 resignations from medical officers in the regular service, 46 of which occurred during the fiscal year covered by the report. Perhaps, with too keen foresight, these seafaring doctors visualized a ship scrapping melee and merely observed the adage which calls discretion the better part of valor. The commissioned medical personnel on duty July 1, 1921, comprised 768 medical officers of the Navy, 71 of temporary appointment, 47 of the Naval Reserve Force, and 71 pharmacists serving under temporary appointment as lieutenants in the Medical Corps of the Navy, making a total of 935.

During the past year the Bureau of Medicine and Surgery has aimed to increase educational advantages available to medical officers who have long displayed ability and earnestness in their profession, as well as to those who have entered the Medical Corps of the Navy since the beginning of the war. With this in view, a close relationship between the bureau and the Naval Medical School has been established to carry out certain policies of education. The bureau, we are told, has modified the curriculum at the school so as to strengthen the department of naval hygiene, which, in the future, will lay more emphasis upon branches of naval hygiene which have been an outgrowth of the war. Notable among these are the hygiene of gas defense, submarine warfare, and aviation, especially those factors which apply to flying in high altitudes. With the provision for courses at the Naval Medical School, special medical study at civilian medical clinics, and surgical study at the Mayo Foundation, at Washington University, St. Louis, and at the Massachusetts General Hospital, it would seem that the Bureau of Medicine and Surgery has been amply generous along the line of educational opportunities for its medical personnel.

In a recent editorial review of the Annual Report of the Surgeon General of the Army attention was directed to the item headed "Unsatisfactory Character of Recruits." It appears that the same state of affairs exists in the Navy, for the Surgeon General tells us that in order to recruit the Navy to its full quota, men of inferior physical and oftentimes of doubtful mental capacity were accepted. Such men, as a result of change in environment and of living under military discipline, are poor risks from the standpoint of the health of the Navy. Men of poor physique soon become fatigued by their active military training, and men of poor mentality never learn to care for themselves properly. The extreme youth of the newly enlisted personnel is also noted in the Naval recruits, and the fact that many were from rural districts. The young adults, many of whom were mere boys, had never been away from home influences, and consequently knew little about personal hygiene. This could not be taught in the short interval they were at training station. The boys from the rural districts in most instances had never been exposed to the various communicable diseases common to childhood. Consequently, as soon as mumps, measles, and other communicable diseases appeared at a training station, these "raw recruits" furnished fertile ground for their propagation. The increased incidence of communicable diseases in the Navy in November and December, 1920, was due, therefore, not to any neglect in the use of preventive measures, but to the rapid expansion preceding the outbreak, and to the calibre of the recruits. For, according to the Surgeon General, had the recruits enlisted during the past year been of proper physical and mental calibre, it is believed that the rates for communicable diseases would not have reached such a high peak in the winter of 1920 and 1921. The admission rate for all causes, entire Navy, was 778.99 per 1,000, as compared with 676.02 per 1,000 for the calendar year of 1919, and a mean rate of 463.80 for the five-year period immediately preceding the war. This high rate is attributed to influenza and the induction of large numbers of men into the Navy during the last five months of the year. It will be interesting to see if there will be any effect upon morbidity rates for the present year induced by or in consequence of the training and regime to which the large number of low calibre recruits will have been subjected in the meantime.

DISLOCATION OF THE SHOULDER WITH FRACTURE OF THE SURGICAL NECK OF THE HUMERUS.

IN this double lesion many of the symptoms of simple dislocation of the shoulder and simple fracture of the upper end of the humerus will be combined. The principal symptom of shoulder dislocation is the absence of the head of the humerus from the glenoid cavity and, as a corollary, its situation near by. As in simple dislocation, the sign of the epaulet is present, but the humeral insertion of the deltoid is perhaps not so protruding because the axis of the limb is not greatly deviated unless the fragments of the fracture are impacted. The concomitant signs of fracture are the nontransmission of movements imparted to the arm, the ease with which the limb can sometimes be moved, but above all bone crepitation. The latter sign will not exist when the fragments are far apart or when there is impaction, both of which are infrequent. Instead of abduction found in simple dislocation the arm may lie near the trunk, and another symptom is that the movements of rotation of the arm are not painful to any extent in simple dislocation, while when fracture exists the pain is severe. There is almost always shortening of the limb varying from a half to one inch. Finally, when the arm is seized at the shoulder and the limb raised in the direction of its axis a movement of ascension can be imparted to it that cannot be produced in cases of simple dislocation.

Besides these special symptoms there are the general symptoms of dislocations and fractures, namely, ecchymosis, swelling, and functional impotence. Here, as in simple dislocation, there is paralysis of the deltoid, undoubtedly due to contusion or stretching of the circumflex nerve. This paralysis usually retrogresses unless the reaction of degeneration is present which proves that the nerve has been involved in its vitality. Lesions of the brachial plexus are rare so that disturbances of mobility and sensibility in the corresponding area are exceptional. However, the patient may sometimes complain of severe pain at the lower third of the radial side of the forearm when the arm is moved, this pain being perhaps due to compression of the radial nerve by the callus.

Complications are infrequent in shoulder dislocations complicated with fracture of the humerus. Wounds of the integument are rare. Some instances of vascular lesions have been reported. In one case the axillary artery was run through by a fragment of bone, and in two reported instances there was compression of the vessels and rupture of the internal and middle tunics with stretching of the adventitia. These lesions were made manifest by absence of pulsation in the radial and brachial arteries, as well as by coldness of the limb. Lesions of the nerves are still more uncommon and we know of no case in which the radial nerve has been comprised in the callus as occasionally occurs in simple fracture of the humerus. A complication that is to be feared and should be avoided is stiffness of the joint, because the scapulohumeral articulation becomes quickly ankylosed and destroyed, as Malgaigne long since pointed out. Therefore, early mobilization should be the basis of treatment of these cases.

The evolution of the injury will depend upon the extent of the lesions and the surgical treatment employed. When left alone there is but one result, namely, ankylosis. The prognosis from the viewpoint of function is always serious, because the arm will never recover absolute integrity of its movements. But if mobilization, massage, and electricity are resorted to within a week or ten days after the injury has been received, the patient will at the end of three or four weeks be able to put the hand of the injured arm on the opposite shoulder or on his back, a result not obtained for several months when other treatments are adopted. Abduction is the movement most slowly recovered.

PHYSICIANS AS VOCATIONAL EXPERTS.

THE professed vocational experts have not as far as we know been men of medical training. Occasionally medical men have good opportunities for dissuading individuals from taking up this or that career, or to order change of occupation, but constructive efforts along this line do not seem to be in their province. The pedagogue and psychologist have superior opportunities in this direction, and the child who excels in penmanship, drawing, and music is pretty sure to have his future determined largely by these talents. In an article by Soucek, a pediatrist of Vienna (*Wiener klinische Wochenschrift*, December 1, 1921, xxxiv, 48) the author claims that the function of the physician is properly directed against unwise choice of an occupation for which the youth may be properly qualified mentally, but disqualified physically. Heredity is a very important factor for certain occupations run in families; but a study of history and biography shows us how frequently it happens that a man is disqualified physically from following the family vocation. It does not require expert knowledge to dissuade the candidate for tuberculosis from following a bureaucratic career. Very blond men are apt to do badly in occupations which necessitate much exposure to the sun, as gardening and horticulture. The author mentions a case in which a man who was unsuited for gardening made matters worse by working as a stoker; for those sensitive to solar rays are also sensitive to heat in general. Polar explorers are said to be afraid of blonds, who are no less sensitive to extreme cold than extreme heat.

The ophthalmologist should have a voice in vocational advice, for poor vision disqualifies in a great variety of occupations. But he functions as a consultant and we believe is seldom sought as a principal. It is certain that he could often drop a hint to a young man that he should not follow certain occupations, as for example that of jeweler. However, it is not uncommon for young men with

severe astigmatism to waste much time in occupations which they must finally give up because those who might have warned them neglected to do so. The myopic man is at home in clerical positions. Skeletal deformities are often aggravated by certain occupations. The waiter with flat feet becomes worse from his occupation, as does the baker or cabinet maker with knock knees; clearly these men should have elected callings which might have antagonized their deformities. Medical examination of high school graduates who are to go to work will give many vocational hints. Some boys of 15 are unfit for labor of any kind, and should attempt nothing for another year or so. This incapacity may be due to transitory slight deformities, fainting attacks, etc., which will soon be outgrown.

Sousek believes that eventually the medical man will pass to more constructive vocational advice and tell the young not only what they are unfit for but the kinds of work for which they are especially adapted. A course with this scope might be placed in the postgraduate medical college curriculum through which the practitioner could become qualified to cooperate with parents and teachers in choosing a career for the adolescent.

THE "NEW DOCTRINE" OF ORAL (DENTAL) SEPSIS.

READERS of foreign medical literature have for years marvelled at the silence and indifference of the profession on the Continent of Europe concerning the American teaching regarding buccodental sepsis. When a case of oral sepsis does appear in one of the European medical periodicals the chances are that it is genuine acute septicemia of the fulminant type. French stomatologists have pointed out that some of their own men long ago put cases on record which correspond to the American type of a slow, relatively mild sepsis or toxemia expressed as pseudorheumatism, etc. It has even been claimed that some of these reports antedate the earliest observations in the United States. This is very likely correct, but it is also correct to assert that such cases passed unnoted. A puzzling feature was the superiority of American over European dentistry or perhaps it would be better to speak of the superiority of the viewpoint of the average American citizen who keeps his teeth in repair when the same caste in Europe simply have their teeth extracted as fast as they decay. This almost suggested that dental sepsis was a creation of modern conservative dentistry. The wholesale extraction of recent years in the United States, since the propaganda of dental infection, seems in part to strengthen this view.

In the *Wiener klinische Wochenschrift* for November 24, 1921, xxxiv, 47, is an abstract of a paper by Kornfeld entitled "The New Doctrine of Dental Infection of the Organism" which shows that the subject has at last attracted the serious attention of clinicians of Middle Europe. Credit of priority is given to the Mayo brothers and Osler, or perhaps the genuineness of the affection is guaranteed by these names, the owners of which pointed out the extreme importance of the subject in the prophylaxis of disease. It must of course be remembered that Vienna was cut off from American medical literature for nearly five years. Kornfeld quotes from a work termed the "Atlas of Life" from which he evidently obtained his data.

This work is said to have appeared in 1920 in English and is of encyclopedic character; and in its columns the speaker had found a wealth of information on focal infection which seems to have been largely new to him. He is fully convinced that the profession in Austria must awaken to the importance of the subject—that caries must be prevented by all means both before and after the appearance of small cavities; that the *x*-ray plate is the key to the situation; that there must be a more thorough removal of dead roots and pulpless teeth, and at the same time better conservative dentistry effecting sterilization of teeth and roots not extracted. The speaker is himself a dentist who gives his message to the Vienna Medical Society.

BACTERIEMIC ERYTHEMA NODOSUM.

IN the MEDICAL RECORD for December 17, 1921, was an editorial note in which it was stated that this affection is regarded by Damiéville of Lausanne as *sui generis* and not secondary to tuberculosis or any other general infection. The material on which this opinion was based was of the polyclinic type. But in the *Bulletin Médical* for December 3, 1921, xxxv, 49, Saquépée relates a case of pneumococcus septicemia in the course of which the patient developed both herpes zoster and erythema nodosum, the latter typical in appearance. He recalls that in 1905 Loiseleur saw erythema nodosum complicate a streptococcus sepsis. There were no prodromes, for, of course, such could not have been recognized in the presence of septicemia. Tuberculosis could be excluded. The septicemia was not of a high degree and there was no lesion of the lung, which is very unusual in this form of sepsis. The reader obtains the impression that these dermatoses were due directly to the parasitism of the pneumococcus. The latter, which was recovered from the blood in pure culture, was of the variety known as pneumococcus Type I. The case in question recalls an old view that this dermatosis was the result of a low form of rheumatoidal sepsis and could be accompanied by endocarditis. This rheumatic theory seems to have been supplanted by the view that the underlying process is tuberculous. At the present time therefore we seem to know less than ever about the malady which has recently been pronounced an infection *sui generis* as above stated.

News of the Week.

Typhus Epidemic in Russia.—According to a special cablegram from Moscow to the *New York Times*, under date of January 5, typhus fever is being spread by refugees from the famine area and is assuming epidemic proportions. Upwards of 800 cases were reported to the hospitals of Mos-

cow during the week ending December 17. The report states that unquestionably the total number of cases is far greater than is notified, for the press contains urgent appeals to the people not to conceal cases of sickness. Efforts are being made to fight the plague by division of the city into sections supervised by the Health Department and controlled by members of the Moscow Soviet; by wide distribution of free bathhouse tickets, and an appeal to Communists to help scavenging, which is inadequate. The railroad stations are the worst source of contagion and thus far nothing has been done in the way of a delousing scheme at the stations and in all buildings where the disease occurs, which alone would be really effective. Relief workers believe that 5,000,000 deaths in the famine area is a low estimate, and that 10,000,000 human beings may perish as a result of the famine and pestilence. Typhus is so prevalent through the Volga region and in Turkestan that the Soviet Government has stopped all passenger service to and from those regions.

Infant Death Rate in Big Cities.—Figures recently issued by the Registrar-General of Great Britain show a surprising disparity in the death rate of babies in different cities of the world. Christiania during the last quarter of 1921 had the best record; the death rate among babies under one year was thirty-three in every thousand. In Amsterdam the rate was forty-two, in Stockholm forty-eight and in London ninety-three. Bombay had the worst record, with 630 deaths out of every thousand.

Proposal to Disenroll the Medical Reserve Corps of the United States Public Health Service.—The plan recommended by Walter F. Brown, Chairman of the Joint Committee on Reorganization of the Administrative Branch of the Government, to disenroll the reserve corps of medical officers of the United States Public Health Service is meeting with vigorous protests. The American Legion and other veteran organizations disapprove of the plan. Surgeon-General Cumming has stated that he thinks the proposed reorganization would demoralize the corps and be a serious detriment to the ex-service men in the hospitals. Surgeon-General Stitt of the Navy and Surgeon-General Ireland of the Army are likewise opposed to the plan. Reducing the 1200 reserve medical officers of the Public Health Service to a civilian status, it is claimed, would result in a saving to the Government of about $750,000 a year. Brigadier-General Sawyer, President Harding's personal physician, is said to favor the plan. About 97 per cent. of the surgeons now working in the Public Health Hospitals are former army surgeons who have seen service in France. Many of these are specialists who have given up lucrative practices to develop for the Government the best in tuberculosis and other special treatments. These men would be affected by the order, should the President issue it.

Philippine Public Health Work Aided by Rockefeller Foundation.—The International Board of the Rockefeller Foundation has accepted an invitation to cooperate in carrying out the general scheme of reorganization of the public health activities of the Philippine Islands, which was recently made public by the President of the Senate, Manuel Quezon. The participation of the Board will consist in lending the services of certain members of its staff for a limited period and providing specialists as consultants and assistants to Philippine Government officials in various lines of public health work. The broad program which the Government has adopted for improving health conditions includes the ultimate consolidation of all health functions in a single department of health to correspond with the ministry of health in other countries. Among the persons whose services will be furnished by the Rockefeller Foundation is an assistant to the dean of the College of Medicine and Surgery of the University of the Philippines, who will assist in developing the medical school and will give particular attention to the problem of providing post-graduate instruction in public health so that the health workers so urgently needed in the Philippine Islands may be trained locally. Fellowships for advanced study in the United States will be offered by the Board to exceptionally promising and well qualified young Filipinos. The nursing situation will also be studied and special attention will be given to training women in public health nursing. Dr. Victor G. Heiser, Director for the East of the International Health Board, and formerly Director of Health for the Philippine Islands, will go to Manila in February to assist in carrying out the program.

Internationalizing Sera Standards.—Cooperation of the foremost laboratories of the world for the unification of international standards of antitoxic sera has been begun by the League of Nations Health Committee. Two preparatory conferences have been held, the work has been divided amongst the various national laboratories, and the individual studies have been begun. The United States has agreed to cooperate in this work through the United States Public Health Service at Washington, and through the presence at the conferences of Dr. Rupert Blue, Assistant Surgeon General, stationed at Paris.

Use of Drugs Not Due to Dry Law.—The statement that prohibition has resulted in an increase in the number of drug addicts in the country has been denied by Colonel O. G. Forrer, administrative assistant in the Narcotic Division of the Treasury Department, who says that victims of the drug habit practically in every instance are young men and women, often in their teens. Rarely are they alcoholics.

Prescriptions for Alcohol.—According to the records of prohibition agents, physicians in the Chicago district issued 2,189,000 liquor prescriptions in 1921. The figures for New York State, made public by Ralph A. Day, Federal Prohibition Director, show that during 1921, there were issued in this State a total of 946,700 liquor prescriptions by practising physicians. There are 12,500 physicians in the State; therefore the average number of prescriptions for each physician is seventy-six, which is considered small.

Alcoholism at Bellevue Hospital.—Dr. Menas S. Gregory, director of the psychopathic and alcoholic service of Bellevue Hospital, has given out figures showing that 2,381 cases of alcoholism were admitted to Bellevue Hospital in 1921, as compared with 2,091 for 1920. In 1914, the total number of cases admitted was 7,642, and in 1916, 9,293. The large majority of the cases treated in Bellevue during the

past two years were men and women who previously were not considered inebriates. Dr. Gregory states that no comparison can be made between the condition of the patients in the enforcement period and the preprohibition period. Formerly when good whisky was available persons could easily be relieved of their sufferings in a short time. Now they face serious and perhaps permanent ailments from overindulgence. Dr. Gregory advocates lawfully regulated beer and light wine as a possible solution of the problem and emphasizes very strongly that inebriety cannot be overcome simply by withholding the alcohol. It can only be destroyed by being replaced; the intoxication motive must find another outlet.

Cause of Some of the Deaths Attributed to Wood Alcohol.—During the past two weeks there have been a number of deaths in New York City which have been attributed to wood alcohol. From a commercial source comes the statement that these deaths are probably due not to liquor containing wood alcohol but to that concocted of preparations which are intended for toilet use. These preparations are legalized formulae containing acetone and isopropyl alcohol, and can be obtained without permit. Purchasers of these compounds having a knowledge of chemistry recover the ethyl alcohol they contain, but the majority of buyers simply color the preparations and sell them for whiskey. Antidotes for wood alcohol do not combat either of these chemicals, according to the expert chemist who calls attention to the use of these preparations as beverages.

Automobile Deaths in the United States in 1921.—According to the National Highways Protective Society, 1,981 persons were killed by automobile trucks and passenger cars in New York State, including New York City, in 1921. This is the highest number of motor fatalities ever recorded in the State. The fatalities in 1921 were 452 more than in 1920. In the City of New York automobiles caused the death of 835 persons, 281 of whom were killed by trucks. The increase of automobile fatalities since 1919 in the State of New York was nearly 60 per cent. In 1919 the number of deaths was 1,270. The report of the society shows that in December last 185 persons met death by automobiles in the whole State.

Constitutionality of Willis-Campbell Law Attacked.—In arguing recently before Judge Edwin L. Garvin, in the Federal Court in Brooklyn an application for an injunction to restrain the Federal prohibition authorities from interfering with the manufacture and permit-sale of beer for medicinal purposes, Mr. William M. K. Olcott attacked the constitutionality of the Willis-Campbell law for the following reasons: (1) It is an invasion of the personal rights of a physician to prescribe and for a patient to use what the former in his knowledge and experience has deemed best as a health giving prescription. (2) It interferes with human rights because it destroys the right of breweries to cooperate with physicians, druggists, and patients in the sale of liquor for medicinal purposes, a use never prohibited by the Eighteenth Amendment. (3) Because the attempt of Congress to make such enactments is not within its powers as contravening that portion of the Constitution which limits to Congress the express powers delegated to it and expressly reserved to the State those powers not delegated. (4) On the broad ground that it is an attempt on the part of Congress to usurp the police powers never given to it by the Constitution or any of its amendments—a power clearly reserved to the individual States and which have always been considered the exclusive rights of the State. Mr. Olcott said further that Congress was not in a position to judge that medicinal-beer would make the brewers, the druggists, and the sick all law-breakers, he said. Congress had permitted the sale of cocaine and other habit-forming drugs on the prescription of a physician, therefore, why not beer? The Assistant United States District Attorney stated the Government's position. Judge Garvin is holding the matter under advisement.

Two Bills Demand Federal Inquiry Into Narcotic Drug Situation.—Representative Lester D. Volk of New York has introduced two resolutions in Congress dealing with narcotic drug addiction in the United States. One resolution directs the Secretary of the Treasury to furnish facts concerning a recent ruling of the Internal Revenue Department which would deprive addicts of the treatment and advice of their physicians and compel them to enter penal institutions and private sanatoriums for treatment. The other calls for an investigation of the entire subject of drug addiction, the method of handling addicts, and for the purpose of drafting legislation for the control of narcotic drug addiction. Congressman Volk says he has been led to introduce these resolutions largely because of the situation in regard to narcotic drug addiction in New York, which he characterizes as a national disgrace.

Hospital Notes.—A movement to enlarge the Reconstruction Hospital, 100th Street and Central Park West, New York, and develop it into one of the finest institutions for post-operative treatment in the country, was launched at a meeting of the directors on January 5. Plans were formulated to raise $1,500,000 to build a twelve-story hospital building for the treatment of industrial accidents and diseases. The Reconstruction Hospital was incorporated on February 19, 1921, through a consolidation of the Clinic for Functional Re-education, opened on July 15, 1918, for war injured, together with a number of industrial casualties, both of which have been treated from the beginning by new methods of operation and particularly after-care learned in the war; the Demilt Dispensary, founded in 1851; the Park Hospital, founded in 1902, and the Institute for Crippled and Disabled Men. Since the opening of the institution, 206,146 treatments have been given to 3,555 patients. At first the cases were practically 100 per cent. from the Government. Government cases have now fallen to 25 per cent. and industrial cases have increased to 75 per cent. of the total. Dr. W. Gilman Thompson is head of the institution.

The Sydenham Post-Graduate Hospital, on East 116th Street, has purchased the block front on the west side of Manhattan Avenue from West 123d Street to 124th Street and extending through to Hancock Place, upon which it plans to erect a ten-story fireproof hospital building. The cost of the new building, including the site and equipment, is

estimated at $1,000,000. One of the features of the institution will be the elimination of wards, as every patient, whether free or contributing, will have a sperate room.

A new hospital has been established in North Hudson and is known as the Physicians' and Surgeons' Hospital of West Hoboken. The institution will be incorporated at $10,000 and will have a capacity of ten beds at first. This number will be increased to twenty-four very soon.

A contract for additions to the Boston City Hospital totalling $493,000 have been awarded. Under the proposed plan the capacity of the out-patient department will be increased from 500 to 1000. Two additional stories will be added to the building, and each end of the building will be lengthened by forty feet.

Dr. Virgil P. Gibney was presented with a loving cup on the occasion of his fiftieth anniversary as head of the Hospital for Ruptured and Crippled, New York. The cup is engraved with the following lines: "1871-1921, Dr. Virgil P. Gibney, who for half a century has devoted his faithful services and masterful ability to the advancement and guidance of the New York Society for the Relief of the Ruptured and Crippled. Presented by the Trustees and Staff of the New York Society for the Relief of the Ruptured and Crippled." A record of the work done by the hospital has been compiled in connection with the celebration of the fiftieth anniversary of Dr. Gibney's service to the institution which shows that 503,403 patients have been treated during this period.

Dr. H. M. Robertson has removed his offices to suites 211 and 212 in the new medical building, North Main Street, between Sixth and Seventh streets, Santa Ana, Cal.

Dr. S. Pope Brown has been appointed village health officer of Potsdam, N. Y., to succeed Dr. Frank J. Fuller, who still retains the office of town health officer.

Dr. Joseph P. Londrigan has been appointed president of the staff of St. Mary's Hospital, Hoboken, N. J.

Charitable Bequests.—The will of Morris S. Barnet makes the following bequests: Mount Sinai Hospital, New York, $50,000; United Hebrew Charities and Montefiore Home, each $2,000, and Beth Israel Hospital and the National Jewish Home for Consumptives, Denver, Colo., each $500.

Roosevelt Hospital, New York, is the recipient of more than $400,000 under the will of Miss Helen T. Cole.

Obituary Notes.—Dr. GEORGE E. SHOEMAKER of Philadelphia, a graduate of the University of Pennsylvania School of Medicine in 1882, died on December 6, at the age of sixty-four years. He was a member of the Philadelphia County Medical Society, the Medical Society of the State of Pennsylvania, the Philadelphia Academy of Surgery, the Obstetrical Society of Philadelphia, the Philadelphia College of Physicians, the American Medical Association and the American College of Surgeons.

Dr. BYRON B. POTTER, a graduate of the Cincinnati College of Medicine and Surgery in 1869, and a Civil War veteran, died suddenly at his home in Lancaster, Mo., on December 16, at the age of seventy-four years.

Dr. DAVID HAROLD of Indianapolis, a graduate of the Physio-Medical College of Indian in 1889, died on November 30, at the age of seventy-seven years.

Dr. CHARLES HUTCHINSON, a retired physician of Portland, Me., died on December 5, at the age of ninety years. He was graduated from the Albany Medical College and served as a civilian physician in the Civil War.

Dr. JOHN J. RHEINHART of St. Louis, Mo., a graduate of Barnes Medical College, St. Louis, died suddenly on December 8, at the age of forty-four years.

Dr. MALCOLM MACFARLAN, formerly professor of surgery at the Hahnemann Hospital, Philadelphia, died at Ardmore, Pa., on December 9, at the age of eighty years. He was graduated from Yale Medical School in 1865 and served as field surgeon during the Civil War.

Obituary.

JOSEPH MACDONALD, JR., M. D.

NEW YORK.

DR. JOSEPH MACDONALD, Jr., died suddenly of apoplexy on January 7, at his home in East Orange, N. J. He was born in Branchville, N. J., in 1870, and was graduated from the Medical Department of the University of Baltimore in 1904. He was connected for a time with the *International Journal of Surgery*, and in 1905 founded the *American Journal of Surgery* of which he was managing editor. He was a prominent Mason, being Past Grand Commander of the Knights Templar of New Jersey. During the war he served as Major in the Medical Corps of the U. S. Army, being actively engaged in securing volunteers for the medical service.

Dr. MacDonald was a member of the Medical Society of New Jersey, of the American Medical Association, and of the American Medical Editors' Association. He was for many years secretary of the last named society and served for one term as its president. He was always actively interested in this association and it was very largely through his enthusiasm and untiring labors that the society was built up into a strong organization with a large and active membership. He was personally known to every member and was popular with all, and his death leaves a void that will be hard to fill.

Service Bureau.

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Correspondence.

THE QUESTIONABLE QUESTIONNAIRE.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—Your editorial on the questionableness of the questionnaire states the matter truthfully and effectively as it seems to me. The questionnaire method is not a very good way of reaching truth, at the best. It appeals to those who are opinionated rather than to the judicious.

Then it is very hard to say that any medical remedy is a necessity. Schools of Medicine have flourished without using opium or mercury or quinine in what we call medicinal doses. The doctors who say "yes" and those who say "no" to the question "is beer a necessity as a medicine?" must have very different conceptions of what is a necessity.

It is said that the purpose of medicine is "to cure sometimes, to relieve often, to solace always." Anything that enables the doctor to accomplish these things most effectively may I suppose be called a necessity. If Dr. A. uses such medicines as give better results and a larger practice than Dr. B, these medicines are his necessity, and he would answer "yes" to a questionnaire. On the other hand the very conscientious, meticulously ethical, and scientifically organized medical mind would probably say "no" to nearly every questionnaire that asked "is this specific medicine a necessity?" I should say that a questionnaire with the alternative "or important" would have made the interrogation a fairer one.

MEDICUS.

NEW YORK.

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, December 27, 1921.

Sterility in Women.—At a meeting of the London Association of the Medical Women's Federation held on December 13 last, at the Elizabeth Garrett Anderson Hospital, the question of sterility was discussed. Papers on the subject were read by Drs. Christine Murrell and Elizabeth Bolton. Dr. Murrell traversed briefly the possible causes of sterility, laying especial stress on the importance of considering the condition of the husband as well as the wife. She directed attention to the fact that where active spermatozoa were present in the seminal fluid, sterility might be due to incomplete or too rapid coitus, to mechanical obstruction to the upward passage of spermatozoa, for instance, in cases of uterine displacement, cervical obstructions, or profuse discharge from or stenosis of the internal os. The uterus lining might be unsuitable for imbedding, or there might be disease of the tubes or of the ovaries. Moreover, putting mechanical causes on one side, and these could frequently be treated successfully by operative measures, there was still a good deal of work to be done in the study of the endocrine glands as they affected pregnancy. Dr. Murrell dealt at considerable length with the hormone theory of sterility, and the effects of administration of preparations of thyroid, posterior pituitary, thymus, and ovarian extracts on menstruation, ovulation, and pregnancy, pointing out the different endocrine preparations which might be expected on theoretical grounds to be of value, and the particular conditions in which she had found them useful. Dr. Bolton read a summary of 150 cases of sterility which had been treated by her. Of this number 122 were really treated, of whom 63 became pregnant. She found that these cases fell into four different groups, according to the gynecological findings, and she had found a gynecological abnormality in the entire 150 cases: 86 had marked anteflexion, the majority of these had an elongated cervix pointing forward, 20 had retroversion, 28 fibroids, 16 were tube cases. Of the 86 anteflexion cases 16 were untreated; of the remaining 70, 40 became pregnant; 52 had a dilatation and curetting, of these 27 became pregnant; 19 merely had a sound passed and 10 became pregnant; 2 had vaginal septa and became pregnant later; 1 had injection of semen twice, after 2 dilatations, but with no result. One had an exploratory operation, when the ovaries were found to be adherent and were freed, and a dilatation was also done, and this patient became pregnant. In all these cases the passage of the sound and dilatation were done, if possible at such a time as to allow intercourse before the next period. The time of pregnancy, in relation to the operation, varied greatly; in the majority of cases it occurred within a few months, in a few cases at once, and in a few others after two or three years, but Dr. Bolton had not heard of any after a longer period than three years. Several of the dilatation cases were operated on owing to dysmenorrhea as well as sterility, and many of these were much better from the point of view of the dysmenorrhea, though they did not become pregnant. Of the 20 retroversions 2 were untreated, 13 of the 18 became pregnant; 11 were replaced and a Hodge pessary inserted; 4 of these had a dilatation, 2 had a sound passed. Of the 11 cases treated with a Hodge, 7 became pregnant. Two retroversions with adherent tubes had an exploratory laparotomy and both later became pregnant. Five Gilliam operations were done for sterility and 4 of these patients became pregnant. All these had the right tube only involved, complicated by the appendix. Of the 25 fibroid cases, 4 were untreated; of the remaining 21, 7 became pregnant, 2 of these had a large polyp removed by the vaginal route, the other five had several fibroids removed by abdominal myomectomy. Dr. Bolton usually advised myomectomy patients to avoid pregnancy for six months after the operation. She had had one patient from whom she removed two large fibroids by myomectomy, who was found at the time to be about two months pregnant. The woman had had no previous pregnancy, had been married fourteen years, and was 42. She went to term satisfactorily. Dr. Bolton noted that all of this small number of cases had a gynecological condition that might account for the sterility, and that over 51 per cent. of all the women treated became pregnant.

Puerperal Infection.—At a meeting of the West London Medico-Chirurgical Society on December 2, a discussion on the treatment of puerperal infection took place. The discussion

was opened by Dr. Frederick J. McCann, who began by comparing the nature of puerperal infection with that of ordinary septic wounds. The normal sequence of events in a healthy puerperium was attained chiefly by the increased vascular and lymphatic supply of the involuting uterus. He emphasized the importance of wounds of the cervix, vagina, and vulva as sources of infection and criticised the orthodox teaching that infection usually originated within the uterus. He then alluded to the modes of spread and the general course of the infection and discussed the importance of prophylactic measures. He pointed out the defectiveness in the hospital system in that it provided such scanty accommodation for puerperal cases. The teaching of obstetrics should also be improved. Medical officers of health should be empowered to admit to hospital women whose domestic surroundings were unsuitable for a confinement. The application of forceps and the introduction of the hand into the uterus should be regarded as a major operation. Rectal examination should be avoided, its disadvantages were obvious. Vaginal and perineal wounds and deep cervical tears should be carefully cleansed and sutured. As for the treatment of infected cases, in the first place extragenital sources of infection must be excluded. Exploration of the uterus was only permissible in the severer types of cases or after any likely source of infection in the lower genital tract had been excluded. The curette should be used as a probe only, or for gently removing any loose fragments, and never as a scraper. Puerperal peritonitis and localized abscesses must be dealt with on ordinary surgical lines. Subcutaneous injections of saline solution, free purgation, and the judicious use of quinine were all valuable. Serums and vaccines were on the whole disappointing.

Dr. Remmington Hobbs believed strongly in uterine drainage, as in his opinion the rise of temperature was due to mechanical blocking of the uterine outlet by malpositions of the uterus, edema of the cervix, and overloading of the rectum. For the purpose of clearing the way he used a small rubber catheter. After cleansing the genital passages the catheter was introduced into the uterus by means of a special forceps made to his design, 10 c.c. of a glycerin and iodine mixture, in the proportions of 7 to 1, was then injected into the uterus. It might be necessary to repeat this injection on several consecutive days, according to the course of the temperature charts which bore out the efficacy of this line of treatment. Dr. Knyvett Gordon stated that an experience of 250 cases had led him to believe that the best line of treatment was curettage, saline infusions, and the use of antisera in large doses combined with saline. Laparotomy and even hysterectomy were indicated in the severer cases. Dr. Bernard Spilsbury referred to the severe type of case seen by him, in some of which death occurred as early as 24 hours after infection. There was in these cases little macroscopic evidence to account for the infection. Dr. J. Burnford laid stress on the importance of bacilluria as a cause of fever during the puerperium. Bacteriological examination of the urine should be a routine procedure in puerperal cases associated with pyrexia.

King Edward's Hospital Fund for London.—A meeting of the General Council of King Edward's Hospital Fund for London, held with the object of awarding grants, took place on Dec. 14 last. Lord Revelstoke, honorary treasurer, said that the amount received for general purposes to Dec. 3, 1921, was £221,326. This exceeded the total indicated in the estimate laid before the Council in November, the increase being due to the generous action of King George's Fund for Sailors in again providing the amount of the grant of £5,000 to the Seamen's Hospital. The legacies received during the past eleven months amounted to £74,000, as against £18,000 in 1920, and the Council had decided to distribute a portion of these additional receipts, and to retain a portion in reserve. Lord Revelstoke then read the following letter from Lady Mount Stephen: "I have been allowed to tell you by the executors that my husband has left the residue of his fortune to King Edward's Hospital Fund. It is, I believe, practically nearly the whole of his fortune, for the legacies, etc., in proportion do not amount to anything of importance." Viscount Finlay moved a resolution recording the deep regret of the General Council of the Fund at the death of Lord Mount Stephen, to whose benefactions the Fund and the sick poor of London owed so much. His gifts to the capital of the Fund during his lifetime amounted to some £500,000. The late Lord Strathcona and the late Lord Mount Stephen were born in Scotland, within a few miles of each other, of poor parents. They emigrated to Canada when young and both made immense fortunes. Both, too, were instrumental in rendering the making of the Canadian Pacific Railway possible, and they both gave lavishly to charity and especially to hospitals. The magnificent Victoria Hospital in Montreal is a standing tribute to their munificence. Lord Mount Stephen's posthumous gift to the London Hospitals is exceedingly timely and should greatly aid in tiding them over their present difficulties.

Experimental Rickets.—Recently there has been published by the Medical Research Council a report on experimental rickets by Dr. Edward Mellanby. There is, at the present time, a good deal of confusion or, at any rate, there are wide differences of opinion with regard to the etiology of rickets. Some hold, and hold strongly, that the condition is mainly due to want of fresh air and exercise, and that diet plays but a small part in its causation. Others, of course, and these are in the majority, retain the old view that rickets is brought about by an ill-balanced diet, and especially by a diet lacking in the essential vitamine elements. Dr. Mellanby in a former report laid much stress on the absence or deficiency of the fat-soluble A vitamine, and attributed to this cause the initiation and development of the condition. In the report just issued these opinions are considerably modified and not so much attention is directed to the importance of the fat-soluble vitamine. Mellanby's conclusions are as follows: "To combine the facts into a simple general hypothesis, at this stage of the work at least, seems impossible except to state that some elements of the diet assist in the calcification of bone, antirachitic vitamine and others inhibit it. The greater the growth the more necessary it is to have in the diet and absorbed

from the alimentary canal, substances which aid in calcifying bone, *e.g.* calcium, phosphorus, and antirachitic vitamine. If these latter substances are relatively deficient or defective in their action rickets will result. In addition to the dietetic elements there is the effect of exercise to be considered. This aids the process of calcification. But if a child is correctly fed, the question of exercise appears to Mellanby to be negligible, partly because exercise is not so necessary when calcification processes are strongly stimulated by the dietetic elements and partly because an adequately fed child will get exercise in the form of small movements under any conditions. If children are improperly fed, from the point of view of this research, they will almost certainly react, as shown in the case of puppies, by not taking exercise.

OUR LETTER FROM SWITZERLAND.

(From Our Own Correspondent.)

GENEVA, December 5, 1921.

Epidemic Hiccough.—I am able to give some data relating to that peculiar morbid process, epidemic singultus, as it has appeared in Switzerland. The first cases observed developed in the winter of 1919-20, and Dr. Gautier describes them as occurring in subjects otherwise perfectly well, except that in some the condition was accompanied by a febrile state, but of no severity whatsoever. The singultus developed suddenly, lasting for hours without intermission and then after a phase of calm a paroxysm of coughing or some effort on the patient's part caused the spasms to return. The affection sometimes lasted for as much as four days and then disappeared rather suddenly. Gautier regards these abnormal forms of singultus as special forms of encephalitis lethargica resulting in a disturbance of the phrenic nerve, which might be either an attenuated, isolated manifestation of the disease or a prodromic sympton of encephalitis. It was especially toward the end of 1920 that this curious affection began to multiply and attracted the attention of the profession, and it was only then that the Federal Health Board issued instruction to report all cases, so that the data to hand included only 46 cases reported during January, February, and March, 1920, and 17 reported from Bâle from the end of October, 1920, to January 31, 1921. One case was reported in Geneva in May, 1921, so that the total amounts to 64 known cases.

The disease attacked adults. In some instances the singultus persisted for a week, in others it disappeared in a few hours. It subsided quite as quickly as it developed. The hiccough was sometimes so severe that the patient's bed was actually shaken. In one case the spasm disappeared and then shooting pain in the knees and legs ensued, true algias recalling those of encephalitis lethargica. In another case the singultus coincided with an erythema extending all over the face, while in still another there was at the same time an attack of acute gastritis with vomiting and complete intolerance for food.

Some of the cases remained apyretic, while in others the temperature reached 101° F. The sensorium was not usually involved, though a few patients presented a little mental cloudiness. The cases were in general scattered about and only occasionally were there little foci in families or in certain localities. Their relation to influenza or encephalitis lethargica could rarely be determined. Thus, in one instance the son of the family contracted epidemic singultus and a few days later the father came down with encephalitis lethargica. In another case the singultus followed upon an influenzal bronchitis and then had been one case of encephalitis in the neighborhood. Finally, in another case, the singultus developed after an attack of cerebrospinal meningitis. These scattered and fragmentary indications are quite insufficient to elucidate the etiology of epidemic singultus or to back the opinion which is tending to become more generally accepted, namely, that the hiccough is nothing else than a monosymptomatic form of the myloclonic syndrome of encephalitis lethargica. Hence what data have been given are merely documents that may serve for the general study of this process and are by no means intended to settle the subject.

Dr. Ludendorff.—The mentality of the German is weird. The Faculty of Medicine of the University of Koenigsberg, Prussia, has thought fit to confer the degree of M.D. honoris causa on General Eric Ludendorff. Just why this particular degree should have been chosen for a military man remains obscure, but it is possible that the Faculty were indebted to him for a large amount of clinical material and desired to evince its appreciation by this abnormal demonstration of esteem.

Notifiable Diseases.—The Swiss Federal Council has decreed that the following epidemic diseases must be reported: Variola, cholera, typhus fever, plague, epidemic dysentery, scarlet fever, diphtheria, typhoid fever, paratyphoid fever, epidemic cerebrospinal meningitis, acute anterior poliomyelitis, encephalitis lethargica, influenza, malaria, leprosy, and trachoma. A merely suspicious case of any one of these affections must be reported. In the case of smallpox, cholera, typhus fever, plague, and epidemic dysentery, the notification must be made individually, and sent immediately by the attending physician to the nearest sanitary authority. When the diagnosis of any of the above-named diseases has only been made post-mortem the cause of death must be given. The notification must mention the name, sex, and age of the patient, his social position or profession, his abode or place of birth, the date of the onset of the disease, the provisional measures taken, and, if possible, the source of infection, as well as all other useful indications. In the case where a physician has not been summoned the head of the family or any other adult person of the neighborhood, or if the patient resides in an hotel, boarding house, or school, the director of the establishment is under obligation (before the law) to notify the proper authority. This authority shall see to it that a physician visits the patient within the shortest time possible in order to make a positive diagnosis.

For scarlet fever, diphtheria, typhoid fever, paratyphoid fever, epidemic cerebrospinal meningitis, acute anteria poliomyelitis encephalitis lethargica, influenza, malaria, leprosy, and tra-

choma, notification should be made according to the rules of each canton, the authorities of which shall send each week their reports to the Federal Service or Public Hygiene. This report shall also mention transmissible diseases which are not included among the above-mentioned affections, the notification of which is compulsory in the given canton—varicella, measles, erysipelas, pertussis, mumps, puerperal fever, etc.

Progress of Medical Science.

Boston Medical and Surgical Journal.

December 29, 1921, clxxxv, 26.

1. Surgical Treatment of Acute and Chronic Pancreatitis. Fred B. Lund.
2. What May Be Expected from Sanatorium Treatment? Vincent Y. Bowditch.
3. Two Different Views of Stammering. Ernest Tompkins.
4. The Basal Metabolism in Myelogenous Leucemia and Its Relation to the Blood Findings. Arthur H. Gunderson.

2. What May Be Expected from Sanatorium Treatment?—Vincent Y. Bowditch reviews briefly the history of the growth of sanatoria during the past fifty or sixty years, both abroad and in the United States, and makes it very plain that no claim was ever made by those who best understood tuberculosis that by the establishment of sanatoria the panacea had been found for exterminating the disease. The result of his experience at Sharon Sanatorium has firmly convinced him that every dollar spent for the support of *properly regulated* sanatoria has been more than repaid by what they do to promote the health and welfare of our communities, not only in restoring people to health, but as a large factor in the field of preventive medicine. The open-air school combined with sanatorium life has a wonderful effect on young children, of which the writer feels he can speak with more assurance than formerly. For some reason there has not been the response to this movement which it merits. Physicians are urged in their practice to keep in mind the value of the "preventorium" for children. The sanatorium is one of the vital factors in the whole field of our efforts to eradicate tuberculosis; an adjunct to every other possible means that we can furnish for its cure and prevention. This opinion is now shared by everyone who has had any experience in this special direction.

3. Two Different Views of Stammering.—Ernest Tompkins discusses the various theories of stammering and more particularly that of Bluemel, that stammering is caused by transient auditory amnesia in the auditory speech centers brought on by cerebral congestion. He argues that the Bluemel theory is admittedly a failure for approximately half the cases, and evidently a failure for all the rest. This applies to any theory which imputes a "failure" or "lack" to the stammerer. The visual-asthenia theory, the enlarged thymus theory, the neurosis theory, the psychosis theory, the Freudian theory, any and all theories of the "lack" or "deficiency" class, are as perfect failures as the Bluemel theory. The stammerer's difficulty is not lack of anything—of healthy brain cells, of coordinating ability, of intelligence—it is a superfluity, namely, the mistaken idea that his speech is defective. The speech-interference theory is in harmony with the facts and explains all cases of stammering. Stammering is not a disease, it is a habit. When the stammerer forgets his difficulty his speech flows unimpeded. This habit is kept fastened on the race by the suppression of its true nature and by the dissemination of fallacious disease theories.

4. Basal Metabolism in Myelogenous Leucemia and Its Relation to the Blood Findings.—Arthur H. Gunderson has made sixty-two observations of the basal metabolism on nineteen cases of myelogenous leucemia which indicate that the basal metabolism in myelogenous leucemia bears a relation particularly to the number of immature white cells in the blood stream, regardless of the total leucocytosis. The highest values for basal metabolism are usually found in cases with very high white counts and many myelocytes, or in cases showing high percentages of myeloblasts. Both of these findings probably signify activity of the leucopoietic tissue and that basal metabolism determinations may be considered as indices of this activity.

Journal of the American Medical Association.

December 31, 1921, lxxvii, 27.

1. Type I Pneumonia and Its Serum Treatment. William S. Thomas.
2. The Mode of Production of the So-Called Vesicular Murmur of Respiration. George E. Bushnell.
3. The Deleterious Effects of Sodium Citrate Employed in Blood Transfusion. Lester J. Unger.
4. Ratio Between Deaths from Traumatic Fracture of Cranial Bones and from Alcohol. Edward H. Hatton.
5. Spontaneous Closure of Intestinal Perforation: Report of a Case of Double Infection with Typhoid and Paratyphoid B. B. M. Randolph and Oscar B. Hunter.
6. The Causes and Diagnosis of the Various Forms of Coma: A Further Consideration. Blair Holcomb.
7. Dissecting Aneurysm of the Aorta: Report of Cases and Review of the Literature. P. D. Crowell.
8. Gastric Analysis. IV. The Gastric Equilibrium Zone. Chester C. Fowler, William H. Spencer, Martin E. Rehfuss and Philip B. Hawk.
9. Mechanics of Fracture at the Wrist. Harry L. Schurmeier.
10. Occurrence of Virulent Anthrax Bacilli in Cheap Shaving Brushes. Douglas Symmers and D. W. Cady.

1. Type I Pneumonia and Its Serum Treatment.—William S. Thomas bases this paper on a series of sixty cases of Type I pneumonia treated in St. Luke's Hospital, New York (fifty of them with and ten without serum) and on 550 cases reported in the literature exclusive of the Rockefeller Institute series. The material collected indicates that Type I pneumonia, however treated, varies in its mortality rate with the time and place of its occurrence, and suggests that it may perhaps be not so frequently fatal as is generally believed to be the case. Administration of the specific serum in Type I pneumonia appeared to shorten the disease in four of the fifty treated cases of this series. In eight of them the use of the serum, though followed by improvement in the symptoms, appeared to have only a transitory effect. Among the remaining thirty-eight patients the duration and outcome of the disease do not appear to have been demonstrably affected by the serum. The average duration of the fever among the serum-treated cases was nine and one-half days; among those not treated specifically (ten cases) it was eight and two-tenths days. Two deaths from anaphylaxis due to antipneumococcic serum are reported in the literature. Ten patients of this series suffered from anaphylaxis and were relieved by epinephrin. Of these ten shocked patients, six had previously shown no reaction to dermal tests for sensitiveness to horse serum. Skin tests with the protein of horse epidermis, as well as with that of horse serum, should precede the intravenous injection of the latter. Serum sickness followed the therapeutic use of Type I serum in thirty-six of fifty cases. In fifteen the symptoms were severe. Epinephrin allays the discomfort of the eruption temporarily.

2. The Mode of Production of the So-Called Vesicular Murmur of Respiration.—George E. Bushnell summarizes his investigation on this subject as follows: (1) The selective action of resonators plays an important part in determining the characteristics of sounds within the respiratory apparatus. (2) The specific character of vesicular breathing is due to the resonator, the thoracic cavity, the sound at the place of origin being merely a noise, some element of which is capable of exciting the syympathetic resonance of the thorax. Hence sounds produced without the aid of the larynx may imitate vesicular inspiration. (3) Reciprocating breathing shows that sounds may be produced by currents of air within the lung. The pitch of these sounds is the same as that of vesicular breathing, the audible vibrations of both sounds being those which the thorax as a resonator reinforces and which the lung substance, a poor conductor of sound, is able to transmit. (4) Experiment in which the sounds of respiration over the chest disappear when the glottis is opened wide seem to prove that the sound of inspiration as well as that of expiration originates in the larynx.

3. The Deleterious Effect of Sodium Citrate Employed in Blood Transfusion.—Lester J. Unger has long held that from the biological point of view the delicate blood tissue has been changed, because of the chemical

and physical alterations brought about by the addition of sodium citrate and by its sojourn outside the vessels. Whole unmodified blood, however, flows almost from vessel to vessel and is given to the patient in an unchanged condition. For diseases, therefore, in which the transfusion of blood is indicated for itself, as in the various anemias, blood diseases and infections, there can be no question as to the superiority of whole unmodified blood. In cases of hemorrhage, on the other hand, when the purpose is not so much to replace pathological with normal blood, but rather to replenish the impoverished circulation or to bring about cessation of hemorrhage, citrated blood may serve as a substitute. Because of clinical evidence leading to these views, laboratory experiments were undertaken to investigate the differences between modified and citrated blood. From these the conclusion is reached that sodium citrate, even in the low percentage employed in a citrate transfusion, affects the red blood cells, rendering them more fragile. The value of such blood to a patient suffering from a hemolytic disease, such as pernicious anemia, is lessened to that extent. Sodium citrate diminishes the available complement in two ways: by its direct action on complement itself and by introducing into the plasma an anticomplementary substance which inactivates complement. This substance is derived directly from the bodies of red blood cells. Sodium citrate also reduces almost to nil the function of opsonins, and practically destroys the phagocytic power of white blood cells. Furthermore, the phagocytic index of the blood of various donors differs. Since complement and phagocytic powers are of prime importance in the protective action against pathogenic organisms, unmodified blood from a donor with high phagocytic index should be employed when attempting to combat local or general infection by means of transfusion. In selecting a donor attention should be paid to the finer qualitative differences in the blood.

4. Ratio Between Deaths from Traumatic Fracture of Cranial Bones and from Alcohol.—Edward H. Hatton has compared the death rate in Chicago due to the poisonous action of alcohol alone (including delirium tremens) with the death rate due to skull fracture during the period from February, 1914, to and including August, 1921. Aside from very notable variations, the parallelism of the skull fracture and alcohol curves is unquestionable. Both curves gradually ascend during the years 1914 to 1917. At the end of 1917 both drop abruptly to a new low level, and, except for three high peaks in the skull fracture curve, maintain their parallel course up to the present low level. The drop in 1917 coincides with the entrance of the United States into the World War and the curtailment in the manufacture of alcoholic beverages. The continued drop in the curve corresponds clearly with the increase of activities directed at curtailment of the consumption of alcoholic beverages. The three peaks in the curve of skull fracture deaths seem to be connected with such events as icy and slippery sidewalks, stairways and porches; and in warm weather with accidents occasioned by falling from open windows, over porch railings and down stairs. It does not seem possible to associate the parallelism in these two curves with economic or social factors, or with such movements as "safety first" crusades.

5. Spontaneous Closure of Intestinal Perforation: Report of a Case of Double Infection with Typhoid and Paratyphoid B.—B. M. Randolph and Oscar B. Hunter find this case of interest for several reasons. It seems likely that the patient had been suffering from active typhoid for two or more weeks before coming under observation. The Widal reaction was strongly positive at all examinations. The blood cultures were negative throughout. It is not unlikely that the period during which bacilli could be found in the blood stream had passed before the patient sought medical advice. However, there is a possibility that previous antityphoid inoculation may have been responsible for the negative blood cultures, as one of the writers has observed typhoid in an immunized person, in whose case the blood cultures were negative throughout, although at autopsy the bacilli were recovered from the spleen. The case is also noteworthy because of the simultaneous infection with typhoid and paratyphoid B. which is an uncommon finding, though not unprecedented. The most important feature of the case was the demonstration at necropsy of a spontaneous closure of a perforating typhoid ulcer. Three perforations were found: One that was closed at operation; another, patent, which from the absence of any appearance of local reaction, evidently occurred subsequent to the operation, which was performed a few hours before death; a third which was firmly closed by abundant adhesions, and which, from the evidences of repair shown about its margins, evidently occurred some time before death. From the clinical course of the case it seems obvious that this perforation took place at a time when such an event was suspected. It is probable that spontaneous closure of typhoid perforation occurs more often than we realize.

8. Gastric Analysis. iv. The Gastric Equilibrium Zone.—Chester C. Fowler, William H. Spence, Martin E. Rehfuss, and Philip B. Hawk, in the course of their gastric studies, have introduced into the human stomach a considerable number of fluid substances of widely divergent character in order to secure data in regard to the response secured. Among the substances were water, hydrochloric acid, sodium bicarbonate, sodium chloride, tea, vinegar, etc. They find that the mechanism by which the stomach brings all fluids to an optimum acid level before permitting their evacuation into the intestine is a most remarkable one. It is closely associated with Boldyreff's mechanism. The area in which the gastric acidity values fall after the ingestion of fluids of widely divergent character the writers have called the gastric equilibrium zone. This zone varies for different individuals, being relatively high for high acid stomachs and relatively low for low acid stomachs. This mechanism is practically or wholly lost in disease.

The Lancet.

December 10, 1921, ccl, 5128.

1. An Address on Some Heart Problems. Ernest H. Starling.
2. Chadwick Lectures on Dietetics and Public Health. E. C. Van Leersum.
3. On the Function of the Lymphocyte and of Lymphoid Tissue in Nutrition, with Special Reference to the Vitamine Problem. W. Cramer, A. H. Drew and J. C. Mottram.
4. The Effect of B-Vitamine on the Appetite. Samson Wright.
5. Aortic Incompetence: A Clinical Study. George J. Langley.
6. On the Non-Lactose Fermenting Bacilli in the Stools of Healthy and Unhealthy Uganda Natives. H. Lyndhurst Duke.

1. An Address on Some Heart Problems.—Ernest H. Starling discusses the phenomena of uncompensated heart disease and shows that the essential factor is diminished output. He says it is hardly conceivable, however, that the heart in situ, unable to respond to the demands made upon it, does not itself invoke the interaction of the central nervous system, which may be used either to increase the response of the heart muscle, as certainly occurs in the healthy individual, or possibly to save the muscle at the expense of other organs of the body, subject only to the demands of the brain itself, when the heart is in danger of failing because of excessive fatigue. It is possible, too, that other factors, such as retarded rate of relaxation. may serve to diminish the rate of inflow into the tired heart. After describing the way in which rest, oxygen and diminution of plethora aid in restoring the physiological function of the heart, attention is called to the importance of the circulation through the coronary vessels. In his earlier experiments on the isolated heart-lung, Starling says he used to put the arterial pressure low in order, as he thought, to give the heart as little work as possible to do. Many hearts after the artificial circulation had been established continued to fail and finally went into delirium or ceased to beat. One day he put the pressure to 150 mm. of mercury, thinking that he should kill the heart outright. Instead the heart first dilated and then beat more forcible, but as it reacted to the pressure it steadily improved, and both its systolic and diastolic volumes diminished. He thus found that as soon as an adequate supply of blood through the coronary arteries was furnished the heart steadily improved and was able to contract through an abnormally high resistance without undue dilatation, with improvement in the physical condition, and increased tone of this organ. He is inclined to ascribe the beneficial effects of graduated exercises in heart

disease very largely to the improvement of the coronary circulation brought about by the temporary rise of arterial pressure accompanying the exercises. The most important factor in determining the amount of flow through the coronary arteries, and therefore the oxygen supply to the heart muscle, is the arterial pressure so that as the resistance to the heart beat increases there is a corresponding increase in the flow of blood through the heart muscle. Under extreme conditions of work the flow through the heart muscle may be greater than has been found in any other organ of the body and may amount to 5 c.c. of blood per minute for every gram of heart muscle. The supply of blood and oxygen is aided by two more circumstances: (1) As soon as increased strain is thrown on the heart, or this organ commences to fail, there is an augmented flow through the coronaries out of all proportion to the blood pressure in the aorta. This is not due to the accumulation of carbonic acid in the blood, and must be determined by the formation of metabolites, of which lactic acid may be one, in the laboring muscle fibers. Moreover, the heart has an astounding power of utilization of oxygen in the blood. When an isolated heart is fed with blood from an asphyxiated animal, the heart removes the last traces of oxygen from the blood, so that the blood from the coronary sinus does not contain one-half per cent. of oxygen. The enormous range of adjustment in the coronary circulation characteristic of the healthy heart enables one to form some idea of the evil results which must follow impairment of the power of adjustment.

2. On the Function of the Lymphocyte and of Lymphoid Tissue in Nutrition, with Special Reference to the Vitamine Problem.—W. Cramer, A. H. Drew and J. C. Mottram find that absence of water-soluble B-vitamine from the diet leads in rats and mice to an atrophy of the lymphoid tissue throughout the body and to a lymphopenia in the circulating blood. The polymorphonuclear leucocytes are not affected. Absence of fat-soluble A-vitamine does not lead to an atrophy of the lymphoid tissue and there is no lymphopenia. Absence of water-soluble B-vitamine leads to characteristic nutritional disturbances such as loss of weight, emaciation, subnormal temperature which may be designated by the term "marasmus." No such marasmus results from withholding the fat-soluble A-vitamine. The lymphopenia established by withholding the water-soluble B-vitamine is rapidly abolished by the administration of the water-soluble B-vitamine, and with it the concomitant marasmus. A permanent lymphopenia, associated with atrophy of the lymphoid tissue and nutritional disturbances similar to those produced by withholding water-soluble B-vitamine can also be induced by exposure of rats to sufficient doses of *x*-ray or radium. Since the functional disturbances in lymphoid tissue produced by two such widely different agencies lead to the same nutritional disturbances it is concluded that the lymphocytes play a part of fundamental importance in the nutrition of the body. Other evidence points to the conclusion that they are concerned in the absorption and assimilation of food from the intestine. The conception that vitamines—and B-vitamines in particular—are necessary for the life of every individual cell is criticised. This vitamine is necessary for the maintenance of life of a highly differentiated animal, not because its presence is necessary for the life of all the cells of such an animal, but because its presence is necessary for the normal functioning of the lymphoid tissue. In other words, the term "deficiency diseases" is, like the term "vitamine," a misnomer. These diseases have their origin, like other diseases, in specific lesions, which may be produced by different agencies of which a deficiency in vitamines is only one.

4. The Effect of B-Vitamine on the Appetite.—Samson Wright describes his experiments on rats and summarizes those of others reported in the literature, from which it appears that there is a considerable accumulation of evidence that the appetite is adversely affected by the absence of B-vitamine from the diet of animals. His experiments led him to believe that vitamine B acts by facilitating the carrying out of the functions of the intestinal canal. The main effects produced by the absence of the vitamine, namely, diminished food consumption, loss of weight, and ultimate death, are due to intestinal stasis and the absorption of toxic bodies which results therefrom.

British Medical Journal.

December 10, 1921, ii, 3180.

1. Mitchell Banks Memorial Lecture on the Surgeon as Pathologist. C. J. Bond.
2. Treatment by Inflation of Oxygen. Ernest Rost.
3. Persistent Cloaca with Imperforate Anus as a Cause of Fetal Ascites. John N. Cruickshank.
4. Curettage and the Treatment of Uterine Hemorrhage. Beckwith Whitehouse.
5. Position of the Practitioner Called to a Case of Procured Abortion. John Campbell.

1. Mitchell Banks Memorial Lecture on the Surgeon as Pathologist.—C. J. Bond calls attention to some facts of physiological significance which have come to his notice in the course of his work during the war, which he summarizes as follows: (1) A capacity to elaborate a substance or substances closely allied to, if not identical with, glycogen is possessed by leucocytes, myelocytes, and certain epithelial cells. (2) In the case of white blood cells this capacity is in the main limited to the polymorph leucocytes when they emigrate or escape from the blood stream. (3) In the emigrated leucocyte this glycogenic substance takes the form of a colloid liquid which is rapidly exuded from the cell, and gives a delicate mauve color with iodine. (4) In the myeloid cells of the red marrow and in some myeloma cells this substance is also present and is somewhat evanescent. (5) In certain epithelial cells of the mucous membranes which line the orifices of the digestive, respiratory, and genitourinary canals, this iodophil substance is present in a more granular and less soluble form. It is closely incorporated with the cell cytoplasm, and stains a red or red-brown color with iodine. (6) The same or an allied substance is also constantly found in certain cancer cells of epithelial origin. (7) In the primary growth it is present in the cells which form the cell nests. In common with the irregular growth of the epithelial cells in the cancer area the disposition of the iodophil epithelial cells also undergoes a change. These are reduced in number, and are collected in irregular groups rather than in stratified layers. (8) This iodophil substance is also present in the epithelial cancer cells found in the lymph glands and in other secondary deposits. (9) The presence of this capacity for elaborating iodophil substances by cancer cells in secondary deposits is an indication of the retention of some degree of original function by these cells in their abnormal situation, and is associated with important problems of cell heredity. (10) Myeloma cells have a genetic relation with red marrow cells on the one hand and polymorph leucocytes on the other. All these cells elaborate an iodophilic substance in a characteristically staining and soluble form. (11) The high glycogen content in mammary tumors of certain strains in mice seems to be connected with the strain—that is, the hereditary origin—rather than with a high degree of malignancy in the cells of such cancers. (12) The proportion of iodophil cells in the epithelial covering of the endometrium varies greatly, both in different individuals and in different areas of the same uterus. This may probably be connected with the periodical changes in cell metabolism which occur in the organ. (13) There are some facts which suggest an association between activity in glycogen formation and resistance to infection. In leucocytes the iodophil substance seems to be exuded into the surrounding medium on the disintegration of the cell. In epithelial cells the iodophil substance is present in a less soluble form, and remains in closer association with the cytoplasm of the cell. The fact that the distribution of the iodophil cells varies both in the mucous membranes of different individuals and in different areas of the same mucous membrane may be associated with a varying power to resist invasion by pathogenic organisms.

2. Treatment by Inflation with Oxygen of Tuberculous Affections.—Ernest Rost published in the *Indian Medical Gazette* of September 9, 1920, a preliminary note of the treatment of tuberculous affections of the enclosed cavities, abscesses, and caries, by inflation with oxygen. Since then the treatment has been extended in its application, with very remarkable results, to psoas abscess, tuberculous peritonitis, tuberculous

joints, infection of a compound fracture with *B. aerogenes capsulatus*, multiple pyemic abscesses, chronic synovitis of the knee-joint and fibrous ankylosis of the knee-joint. After aspirating the fluid from the cavity to be inflated the aspiration portion of the apparatus is turned off and connection made with the inflation portion of the apparatus. The oxygen is passed through a wash-bottle and a cotton-wool tube and is warmed and rendered sterile. After the aspiration is made a purse-string suture is applied around the entrance of the needle and pulled tight as the needle is withdrawn. It would appear that the gas has the property of separating surfaces which are adherent by plastic lymph in chronically inflamed conditions of the peritoneum. The distension of a joint by gas prevents the apposition of inflamed surfaces, and the pouring out of serous fluid by internal pressure to the secreting surfaces. It seems that the oxygen exerts some inhibitory effect on the pathogenic process.

4. Curettage and the Treatment of Uterine Hemorrhage.—Beckwith Whitehouse groups cases of pathological uterine hemorrhage under one of the following headings: (1) Menorrhagia, a term limited to excessive hemorrhage relating simply to the quantity of blood lost at a menstrual period. (2) Menostaxis, denoting excessive menstruation as regards duration of the flow, the discharge consisting chiefly of the secretion of the uterine glands. (3) Epimenorrhea, signifying too frequent menstruation, in other words, an alteration of rhythm. (4) Metrostaxis, denoting uterine hemorrhage apart from and having no relation with menstrual bleeding. It includes not only all hemorrhages before puberty and after the menopause, but also all irregular bleeding during a woman's active sexual life. This classification the writer has found very useful in practice, as it divides one's cases into well-defined groups, and affords a basis for investigation and treatment along rational pathological lines. Whitehouse repeats his protest against indiscriminate curetting for all cases of obscure uterine hemorrhage. The operation may do good, but the chances are equally against it if the cause of bleeding is not directly dependent upon pregnancy. As a diagnostic procedure, however, curettage is of paramount importance, especially when the microscopical appearances of the endometrium are considered in relation to the history of the case and the character of the uterine discharge. To curette a uterus and throw away the curettings is comparable to treating hemoptysis without examining the sputum. Hemorrhage from the uterus is a symptom of such diverse conditions involving the whole realm of medicine that no one remedy such as curettage can ever be expected to prove effective in all cases. Radium is no doubt a valuable agent for controlling uterine hemorrhage due to ovarian and endometrial incoordination. It is also a useful remedy in those cases due to hypertrophy or atrophy of the endometrium. In checking hemorrhage at puberty and the menopause radium must exert its peripheral action on the ovaries, as the endometrium is inactive from underdevelopment or atrophy respectively. When uterine hemorrhage is the result of incoordination of various hormones, curettage will be but palliative, or will fail completely, unless combined with other therapeutic measures designed to combat the primary cause.

Le Progrès Médical.

September 18, 1921, xlix, 38.

Vincent's Angina and Intestinal Spirillosis.—Bouchet and Leroux relate a case which sums up as follows: a man, aged 25, first suffered from pyorrhea alveolaris, upon which there developed an ordinary case of Vincent's angina. This was in April, and in the following May there followed an attack of acute enteritis. One year later there was a second attack of angina, after which the patient was treated with salvarsan; since which he has remained free from all symptoms. The authors cannot demonstrate that the intestinal trouble was due to the exciters of Vincent's disease, but this sequence is highly probable. We know now to a certainty that this affection is a pure spirillosis, the fusiform bacillus playing no rôle in causation. The spirilla as a class have been suspected before of the ability to cause enteritis. There are members which dwell in the intestine as harmless saprophytes which are probably capable of becoming pathogenic at times. While the authors use the term spirillum in a general sense they clearly refer to Vincent's spirillum, while at the same time the existence of other forms is sometimes implied. A description of the spirilla of angina and those found in the stools of subjects with enteric diseases shows both conformity and divergence. The germ found in the mouth appears to agree with the so-called buccal and dental spirochete, while there were two distinct forms in the intestine, one of which conformed to the buccal spirochete. One faction of bacteriologists state that the spirilla of the mouth are multiform, indicating either different species or varieties, and the same may be said of the intestinal forms. Others definitely separate the dental from Vincent's spirochete. Despite the confusion in detail there is no doubt that banal spirochetes are able to set up a considerable variety of lesions under certain circumstances.

Le Progrès Médical.

November 26, 1921, xlix, 43.

Atony of the Stomach.—Ramond refers to recent advances in diagnosis, chiefly radiographic, which enable us to differentiate atony of the stomach from conditions which resemble it. The body of the stomach is separated from the fundus by a sort of hour glass division and is elongated, often to a notable degree, the fundus lying low near the level of the pubes. The fundus undergoes no peristaltic movements and the bismuth pulp is found within it. These stomachs have a slightly increased capacity, but are not dilated; they bear a superficial resemblance to ptotic stomachs and the hour glass shape suggests gastrospasm. In the diagnosis of atony we must exclude all stenosis of the pylorus. The bismuth, after reaching the fundus, lies there for six hours or more, and this fact furnishes a presumption of atony. Clinically these subjects complain of anorexia with evidence of slow and incomplete digestion. Nausea is common, while pyrosis, cramps, and vomiting are exceptional. These patients are all air swallowers, and the atonic stomach readily distends. The chemism is not constant but varies with different conditions. There may be high acidity. In the management of this affection the meals should be small and digestible. In some cases two meals daily at 7 a.m. and 7 p.m. work well, but this necessitates large meals, and the author prefers the latter small and more frequently repeated. One eats very slowly, masticating well, and invariably lies down for half an hour after eating.

Schweizerische medizinische Wochenschrift.

November 17, 1921, li, 46.

Infection of a Wound with Vaccine Virus.—Schneiter reports the following case. On June 15 last an unvaccinated girl, aged 10 years, came under observation for an abraded wound on the left arm. Instead of healing, the lesion, after several days, became worse and the arm swollen. Ten days after the injury there was a large crusted sore the size of a silver dollar *in situ*. The margin presented a series of bullae suggesting vaccine pustules. The swelling of the arm was also of the type sometimes seen after vaccination. The general condition and mental state were but little affected, and this, too, is what is seen in the recently vaccinated. The diagnosis of abnormally situated vaccination lesion was made in the absence of an anamnesis. The latter, however, was readily obtained as patient's seatmate in school had been recently vaccinated, as had a number of other classmates. The precise mechanism of transmission was not learned. The lesion closed at the period corresponding to healing of a vaccination wound. The patient was at once inoculated twice with cowpox lymph and the result was negative. The case is by no means the first of the kind to go upon record, and the author cites a number of others of the same type, all of them during the present century. These shade into similar cases of autoinoculation. In one case of accidental heteroinoculation the lesions were severe, suggesting variola, and death occurred with symptoms of meningitis.

Book Reviews.

THE ELEMENTS OF PRACTICAL PSYCHO-ANALYSIS. By PAUL BOUSFIELD, M.R.C.S. (Eng.), L.R.C.P. (Lond). Physician to the London Neurological Clinic (Ministry of Pensions), Late Demonstrator of Morbid Anatomy, St George's Hospital, Late M. O. American Women's Hospital for Officers, etc., etc. Price $5. London: Kegan Paul, Trench, Trubner & Co., Ltd.; New York: E. P. Dutton & Co., 1920.

THIS book of Dr. Bousfield's goes a long step toward a saner presentation of the basic principles of this subject. There has been no attempt made to do any more than give the simple fundamentals of psychoanalysis. Whether the reader believes in this thing or not, he will find pleasure in the reading of this work. There is a simplicity of style that immediately catches the interest and holds it, causing the reader to wish that the author had not made his work so short—a rare thing these days, when every psychoanalyst seems to be in a frenzy to write as complexly as he can everything he thinks he knows. To those who are interested in psychoanalytic work but who are still in a state of confusion as to it, Dr. Bousfield's book is cordially recommended.

PHYSICAL DIAGNOSIS. By W. D. ROSE, M.D., Lecturer on Physical Diagnosis, and Associate Professor of Medicine in the University of Arkansas; Demonstrator of Clinical Medicine and Chief of the Medical Section of the Isaac Folsom Clinic; Visiting Physician Logan H. Roots Memorial (City) Hospital, Little Rock, Arkansas. Second edition. Three Hundred Nine Illustrations. Price $8.50. St. Louis: C. V. Mosby Co., 1921.

THIS is very thorough work on Physical Diagnosis. The author rightly emphasizes the value of a knowledge of anatomy as the basis for the study of diagnosis. He also draws attention to the various physical principles which underlie the different physical signs. In this way the study of diagnosis is made to depend upon the student's reasoning powers rather than upon his memory. The illustrations are particularly good; they are numerous and show clearly the points which the author desires to emphasize. Occasionally some of the illustrations could be dispensed with; for instance, in the nine pages on blood pressure there are ten illustrations showing six different instruments. The greater part of the book deals with the thorax and abdomen; but there are also chapters on examination of the head, neck and extremities, as well as a brief discussion of some of the more important points in the examination of the nervous system.

TUBERCULOSIS AND HOW TO COMBAT IT—A Book for the Patient and His Friends. By FRANCIS M. POTTENGER, M.D., LL.D., Price $2. St. Louis: C. V. Mosby Co., 1921.

THIS little volume of 270 pages is one of the many books recently put on the market to educate the people, and particularly the tuberculous patient. While the reading matter is presented in attractive form, it must be admitted that the book is written in a far too scientific style to be comprehended by the majority of tuberculous patients. Those physicians who have worked among the consumptive poor recognize that the simplest phraseology and the plainest words must be used in dealing with the majority of cases. "Adaptability of organisms," "alkalinity of tissue reduced by exercise," "kinds of bacillus," "calories," "circulatory type of tuberculosis," "emotions and insomnia," "heartbeat governed by oxygen," "metabolism and body heat," "neurasthenic type," "toxemia and temperature," "tuberculin natural stimulus to healing," "weather and metabolism," are some of the expressions taken at random from the index. They are far too scientific for popular reading. Chapter 15, treating on tuberculin, is one which should not be found in a book intended for the laity. Dr. Pottenger's statement that the administration of tuberculin will add to the patient's chances of cure by at least 20 per cent, and in some cases more, is one which the reviewer thinks will not be subscribed to by many American phthisiotherapeutists. The chapters on open air treatment, symptoms, and hygiene in general are excellent, but written in a manner that they will only be useful to highly intelligent patients. The chapter on marriage is particularly good and timely. If the book is intended for the average patient it is too large, too scientific, and too expensive; if it is for the intelligent and well-to-do patient at home, in a health resort, or in a sanatorium, it will prove interesting reading matter providing it does not lead to too much self contemplation.

A PRACTICAL TREATISE ON DISEASES OF THE SKIN. For the Use of Students and Practitioners. By OLIVER S. ORMSBY, M.D., Professor and Head of the Department of Skin and Venereal Diseases, Rush Medical College (in Affiliation with the University of Chicago); Dermatologist to the Presbyterian, Saint Anthony's and West Suburban Hospitals, and the Home for Destitute Crippled Children; Consulting Dermatologist to the Orphan Asylum of the City of Chicago; Member of the American Dermatological Association and of the Congress of American Physicians and Surgeons; Corresponding Member of the Section of Dermatology of the Royal Society of Medicine, London. Second Edition, thoroughly revised. Illustrated with 445 Engravings and 4 Plates in Colors and Monochrome. Price $10. Philadelphia and New York: Lea and Febiger, 1921.

THIS book consists of two parts. The first hundred pages is devoted to a consideration of the general anatomy and physiology of the skin, general symptomatology, etiology, pathology, diagnosis, prognosis, and therapeutics. For the student, this is probably the most important part of the book and should certainly be studied before the discussion of the various diseases of the skin is entered upon. In the chapter on general diagnosis there is included an account of the various tuberculin tests, the Wassermann reaction, and the luetin test. The bulk of the book (about one thousand pages) is given over to the diseases of the skin; and the general arrangement and classification is the one which has been in use for the last half century. On questions of diagnosis and treatment, the author has brought his book into line with the latest teachings. An important feature is the bibliography which, while brief, is well selected and included references to papers which give a more complete bibliography. In a subsequent revision attention should be given to the prescriptions many of which might be improved in language; the mixture of English, Latin and near-Latin is not what we have a right to expect in a book of this class. The illustrations are adequate, and the book is well printed.

ASMA BRONCHIALE. By Prof. CESARE FRUGONI. Salo: Gio Devoti, 1921.

THIS brochure of 88 pages comprises sections on etiology, pathological anatomy, and symptomatology and therapy. In the chapter on etiology we find sections on bronchial asthma, hay fever, endocrinous asthma and asthma in the tuberculous. Under treatment are sections on opotherapy, desensibilization, symptomatic treatment in the interval and management of the paroxysms.

SKILOPERFRAKTURER ET BIDRAG TIL STUDIET AV BENBRUDDENES MEKANIK. By OLAV USLAND. Kristiania: Johannes Bjornstad, 1921.

THIS brochure was originally issued as a supplement to the *Norsk Magazin for Laegevidenskaben.* It is also one of a series of communications from the Akers Hospital, service of Professor Christenson. It is a valuable monograph on the fractures to which ski runners are exposed, with a general discussion on the mechanism of fractures. The 31 cases of fracture from skiing, about which the book is written show a great variety of injury involving the bones of the upper and lower extremities and including several special types, as spiral and torsion fractures of the long bones, supracondyloid fractures, separation of epiphyses, etc., etc. The subject is affiliated with that of fractures of snow-shoe runners. According to the bibliography there is very little literature on these subjects in the English language which is the more strange because all such injuries are included under "sport" fractures, and the English speaking peoples are more inclined toward rough sports than any others.

Society Reports.

SOUTHERN MEDICAL ASSOCIATION.

Fifteenth Annual Meeting, Held at Hot Springs, Arkansas, November 14, 15, 16, *and* 17, 1921.

THE PRESIDENT, DR. JERE L. CROOK OF JACKSON, TENNESSEE, IN THE CHAIR.

(*Concluded from page* 40.)

Observations on the Use of the Copper Filter in the Roentgen Treatment of Deep-Seated Malignancies.—Dr. THOMAS A. GROOVER of Washington, D. C., recommended primarily a single series of roentgen treatments in accordance with a technique not less intensive than that set forth, and that the question of surgical intervention be deferred for a period of approximately two months in cancer of the breast. He believed that by pursuing such a course the following advantages would accrue: (1) The actual volume of cancer tissue would be greatly lessened, and would in some cases disappear entirely so far as could be determined by physical examination. (2) The danger of cancer dissemination incident to surgical trauma would be lessened. (3) A number of inoperable and borderline cases would become definitely operable. It was realized that the danger of operative delay in malignant disease was so thoroughly ingrained in the medical mind that the course proposed would meet with general disapproval, but he believed that a more intimate knowledge of what could be accomplished by efficient radiotherapy would result in a changed point of view.

Some Observations on the Radical Mastoid Operation.—Dr. JOHN H. FOSTER of Houston, Texas, said the reasons for the infrequent use or abandonment of the radical operation by many men appeared to be embraced under the following heads: (1) The few cases of chronic suppurative otitis media today as compared to the number seen in earlier times. (2) The efficacy of conservative treatment and operations. (3) Unsatisfactory results from the radical operation. This operation had been much abused and often improperly applied. It was not indicated in or devised for acute conditions, except in rare cases; nor was the recurrence of a discharge from an ear at intervals an excuse for this procedure. The doing of a radical operation in a case where a simple mastoid was all that was indicated was almost criminal. On the other hand, he emphasized the belief that this operation was one of the most valuable surgical procedures at our command, and that we should be equally culpable in allowing without a protest a patient to subject himself to the danger incident to a chronic involvement of the bone of the attic and mastoid when this could be obviated by this operation.

The Value of Blood Chemistry to the Surgeon.—Dr. WILLIAM H. BAILEY of Oklahoma City stated that the glucose tolerance test had been shown to be of considerable assistance in establishing the diagnosis of cancer, especially of gastrointestinal carcinoma, when the other conditions that gave a similar blood sugar curve had been eliminated. Ether should not be the anesthetic of choice when the patient was found to show an acidosis by a low carbon dioxide combining power of his blood plasma. In gastrointestinal cases showing a starvation acidosis, a two-stage operation might well be considered. A poorly functioning organ was to be feared more as a factor bearing on the operative risk of the patient than a diseased organ that was doing its work satisfactorily. Many deficient metabolic processes of the body might ultimately affect the functional ability of the kidneys. No one test for kidney function should be used to the exclusion of all others. Blood chemical tests, like all other laboratory procedures, must be considered only as additional clinical evidence and their value determined by weighing them with all the data available. A phenolsulphonephthalein output of over 75 per cent. in two hours might be a sign of lessened kidney function. A low phenolsulphonephthalein result was not always an indication of a serious kidney impairment, especially when the blood retention products were not found to be excessively high. A high blood urea content was probably always an indication of lessened kidney function, regardless of the results of the other tests. Satisfactory results could not be expected from these tests if their performance be left to some one not thoroughly conversant with the chemical procedures involved. The estimation of blood creatinine was the most valuable prognostic sign we had in cases of renal deficiency. The slight delay caused by these preoperative studies of the patient would not be a detrimental factor in lessening the patient's chances for recovery in the majority of operative cases. Blood chemistry was of special value in cases of hypertrophied prostate and other mechanical chronic obstruction to the outflow of urine. We should strive to attain the ideal, when every operative patient would be carefully studied by clinical and laboratory methods to accurately ascertain his "surgical risk" before operation, as then that epoch of "physiological surgery" would become truly an established fact.

Clinical Significance of Abdominal Adhesions.—Drs. JULIUS FRIEDENWALD and THEODORE H. MORRISON of Baltimore stated that the diagnosis of pelvic adhesions could usually be best determined by means of pelvic and rectal examinations. The great difficulties frequently encountered in the diagnosis of abdominal adhesions, and the importance of utilizing every available diagnostic measure in order that correct conclusions might be reached; the institution of prophylactic measures, such as the avoidance of unnecessary trauma during operative procedures, and the early stimulation of peristalsis following operation, and in the treatment of these affections, surgical intervention was indicated only after all other possible means had been exhausted, and then only when the symptoms were very severe and disabling, or in the presence of obstructive signs, were points to be emphasized.

Gastroptosis.—Drs. SEALE HARRIS and J. P. CHAPMAN of Birmingham, Ala., stated that in a series of 500 patients studied by them during the past eighteen months *x*-ray examinations in the standing position showed in 278 (55.6 per cent.) that the lower border of the stomach was more than two inches below the umbilicus. These were all adult white patients, most of them native Alabamians, though a few were from Mississippi, Tennessee, Georgia, and Florida. The ancestral lines of the great majority of whites in these States came from England, Scotland, and the north of Ireland, and they conformed to the physical characteristics of the English and Scotch, who were apt to be tall and slender, though hardy races physically. The operation of fixation of the stomach for gastroptosis was mentioned only to be condemned as irrational, meddlesome surgery. The stomach was a very mobile organ and no part of it should ever be fixed as was the effect in all the various types of gastropexies proposed for gastroptosis. *X*-ray examinations by many different observers showed that the operation did not permanently elevate the stomach, and many cases had been reported in which the patient was in worse condition after the operation than they were before they were subjected to an operation which was not without serious danger to life. Their view that gastropexy was never a justifiable operation had been so pronounced that they sent questionnaires to a number of prominent surgeons and gastroenterologists asking their opinion as to the merits of gastropexy. Replies were received from all but two, and without exception they condemned the operation.

Further Observations of Lamblia Intestinalis Infestation and Its Treatment.—Dr. SIDNEY K. SIMON of New Orleans stated that the eradication of giardia infection, once it had become firmly intrenched in the intestinal tract, had proved in the past a signally unsuccessful undertaking. All kinds of so-called intestinal disinfectants had been employed, without effect upon the organisms. Both ipecac and emetine were devoid of influence over this type of intestinal protozoa. In the two cases reported by him last spring transduodenal lavage with jutte solution was given a thorough tryout. In one case the cysts promptly disappeared from the stools, but control had been lacking in determining the permanency of this effect. In the other case the results proved disappointing. Yakimoff in 1917 was the first to suggest the use of arsphenamine in the treatment of giardia infection. He employed this drug experimentally in mice, using 1 c.c. for 20

grams body weight. Two years later Carr and Chandler made use of this preparation for the first time in the human individual for the purpose of eradicating *Giardia intestinalis* infection. Their results proved so promising that he had made free use of the drug in six of the cases reported. In one case, that of a five year old girl, the drug was introduced directly into the intestinal tract through the duodenal tube, while in the other cases the intravenous route was selected. In each instance he found a prompt disappearance of the cysts from the stools, and as far as he had been able to ascertain subsequently no further trace of the infection had been made out.

Lamblia Intestinalis with Report of Cases.—Dr. J. E. KNIGHTON of Shreveport said that *Lamblia intestinalis* invaded the bile ducts and gall bladder. This had been observed by Smithies in cases of gall-bladder disease that were treated surgically. Lamblia might be capable of producing cholecystitis or might have been only a complicating factor in the cases reported. Lamblia infection was not necessarily associated with diarrhea. Only one of the three cases mentioned had at any time been troubled with a persistent diarrhea and this was many years before the onset of the present trouble. Transduodenal lavage or duodeno-biliary drainage gave only temporary relief.

My Observations on Hepatic Extract as a Remedial Agent.—Dr. A. L. LEVIN of New Orleans gave his impressions with regard to hepatic extract as follows: (1) It was a useful agent to stimulate liver function unless it was beyond repair. (2) It must be used for a long period until definite good results had been obtained. (3) It was of value in conjunction with nonsurgical drainage, but had no power to influence pancreatic pathology. (4) It could be used as a diagnostic agent to determine the hepatic origin of the trouble. (5) Liver enlargements due to biliary stasis could be diminished in size in a reasonably short period if used in conjunction with nonsurgical drainage; this included acute catarrhal jaundice. (6) The injection did not give rise to any unpleasant reactions, local or systemic. (7) He was not certain as to the proper dose.

Diphtheria and Hemolytic Streptococcus Carriers as Shown by Tonsil Section and Growth After Enucleation.—Dr. GEORGE E. ADKINS of Jackson, Miss., stated that one of the most essential things in reducing the prevalence of diphtheria over the country would be the complete removal of tonsils and adenoids or the clearing away of points of chronic focal infection in the upper respiratory tract of all diphtheria carriers (or rather all those cases which gave a positive history) regardless of an examination made by reported swabs. Myocardial and nephritic conditions, as well as hyperthyroidisms, should be dealt with practically in the same manner, for it seemed that they were dependent on a focal infection in which the predominating or chief offender was the hemolytic streptococcus.

The Treatment of Lung Abscess.—Dr. C. O. GIESE of Colorado Springs stated that from 6 to 33 per cent. of all cases of lung abscess recovered spontaneously. If spontaneous recovery did not occur within eight weeks, some type of operative procedure should be considered. The type of operation to be advised depended on the location of the suppurative process and the pathology present. Bronchoscopy, artificial pneumothorax, thoracotomy, extensive rib resections and lobectomy were of value, and should be employed in suitable cases. The artificial pneumothorax apparatus afforded a simple and reliable method of determining the presence or absence of pleural adhesions, and over how large an area these adhesions existed.

Abscess of the Lung.—Dr. H. W. LYMAN of St. Louis said that in foreign body cases preventive measures consisted in the discovery and prompt removal of the offending substance, through the bronchoscope, and in the exclusion of an unsuspected foreign body in obscure pulmonary conditions. To prevent cases occurring after operations in the upper air passages, precautions should begin with a careful physical examination, and, except for very urgent reasons, the patient not operated on unless in good condition. Tuberculosis, alcoholism, and diabetes added materially to the danger of this complication. Tonsillectomy in an adult must not be regarded as a minor operation. The use of ether should be avoided in these operations, if possible, but, if used, the anesthetic should be light, an efficient suction apparatus employed to keep the throat as clear of blood and detritus as possible, the patient placed in some position in which the blood could not flow down the trachea, and, after the operation, be kept on the side or prone until consciousness was thoroughly regained. He believed if a general anesthetic was necessary, nitrous oxide was safer than any other in operations on the nose and throat. The question of giving hypodermic injections of morphine, or drugs of similar character, before the operation must be carefully considered because of the fact that they abolished the cough reflex and thus added to the possibility of inspiring infective material. Patients should not be operated on too soon after an attack of acute tonsillitis. At least two weeks ought to elapse before any operative interference was undertaken. The bleeding following tonsillectomy would nearly always cease if left undisturbed for a few minutes. Consequently, any swabbing or manipulation of the tonsillar fossæ should be avoided, if possible, to prevent the dislodging of any thrombi which had formed in the cut veins. The operative technique should be so planned as to minimize the possibility of the inspiration of infective material into the bronchi and the dislodging of venous thrombi from the site of the operation. The forcing of fluids should be a routine measure for the rapid elimination of any toxemia which might ensue.

External Deformities of the Nose and Their Correction by the Intranasal Route.—Dr. SIDNEY ISRAEL of Houston, Texas, stated that in the application of surgical art in the correction of external defects of the nose several requisites or cardinal points were to be observed: (1) There should be no external or visible scar, if it was possible to avoid. (2) Whatever surgical step was taken it must be corrective and accurate and adapted to the individual face. (3) We should have a clear understanding of the deformity and the necessary measures for correction, together with the anatomical and artistic ideal to be approached. (4) Our technique should be mechanically and aseptically as far above criticism as it was possible to acquire. As a result of investigation carried out to determine the most satisfactory transplant for the correction of saddle-nose deformities, he thought that cartilage offered the best results, and was far superior to bone or any foreign substance, such as celluloid. He emphasized the importance of postoperative care, for in no class of work was this more exacting. The reaction locally was negligible and promptly subsided, and, strange as it might seem, these patients suffered practically no pain and little or no discomfort, although it was required that they wear the proper splint, suited to the individual case, for a short period. That the rhinologist should be the one best suited for this special field of surgery, owing to his knowledge of the part, was apparent, provided he possessed the mechanical skill and appreciation of the proper anatomical ideal to be approached, for these cases were individually a distinct mechanical and artistic problem within themselves.

The Management of Tuberculous Laryngitis.—Dr. WILLIAM MULLINS of Colorado Springs said that treatment should begin with careful attention to the nose and throat, as a great many of these patients were in bed on account of temperature, and did not take care of their secretions well. The effects of a deviated septum or of infection of the sinuses or tonsils had a definite influence on the general physical welfare, but the question of the appropriate time to operate for the relief of these conditions must be given the most careful consideration in pulmonary tuberculosis. Diseased tonsils might be largely responsible for a persistent temperature, but such a conclusion could only be arrived at after the internist had satisfied himself that the chest condition was not solely responsible. Cough would irritate the larynx and an irritated larynx or pharynx would perpetuate and aggravate the cough. Intratracheal injections of a soothing oil he had found of great service in breaking up this vicious circle. The laryngeal syringe in preference to the swab was most satisfactory, as it avoided trauma and gagging and permitted covering the whole laryngeal surface as well as the trachea. On the other hand, one might be able to make no progress with an actively diseased larynx until the cough and profuse secretion improved, as might

happen after an artificial pneumothorax. A slight verrucous thickening in the posterior laryngeal wall often gave the scratchy feeling of a foreign body. This annoyance would usually disappear after several light applications of the galvano-cautery. Trichloracetic acid would produce the same results, but was often followed by a temporary spasm. Infiltrations would usually respond to rest and mild palliatives, such as weak iodine solutions and argyrol, but edematous swellings would probably require deep cautery puncture. Localized ulcerations responded best to cauterization of sufficient extent to produce a slight slough, best done by a large cautery point. Tracheotomy must be done in some cases and when it became apparent that this was inevitable, give the patient the benefit of this procedure early. Delay resulted not only in unnecessary suffering, but, by prolonging the bad effect of the stenosis, might prevent or greatly retard any subsequent improvement.

X-Ray Diagnosis of Aortitis.—Drs. THOMPSON FRAZER and JOHN D. MACRAE of Asheville, N. C., said that by examining many different types of normal individuals they formed a conception of what a normal heart should look ike. There would be wide variations within the normal, but the different types would show the same characteristic curves for the left border of the arch of the aorta (the aortic semicircle), the pulmonary artery, the left auricle and the left ventricle on the left of the midline of the chest, while on the right they generally saw the curve representing the ascending aorta and the right auricle. In aortitis and aneurysm these contours were changed. Saccular aneurysms were usually recognized without difficulty; those of the ascending portion lay chiefly to the right of the midline; those of the transverse arch cast shadows in the upper mediastinum which extended to the right or left, depending on which portion of the arch was involved, while aneurysms affecting the descending portion of the arch lay to the left of the midline. Less spectacular than in the cases just discussed, but perhaps more important, because they were so commonly overlooked, were those cases of aortitis with dilatation that were not usually classified as aneurysms. Many of these cases passed from one physician to another, complaining of fatigue, dyspnea and oppression in the chest, and while these symptoms might lead to a tentative diagnosis of heart disease, the actual condition was frequently not recognized until an *x*-ray examination was made. This type of aortal disease was most commonly found in the ascending arch; quite often the transverse portion was involved as well; sometimes there was dilatation with elongation of the entire arch. The dilatation might be slight or well marked.

On the Tolerance of Children for Digitalis.—Drs. HUGH MCCULLOCH and WAYNE A. RUPE of St. Louis stated that the method of administering massive doses of digitalis to children should be the same in detail as for adults. The use of massive doses to children was entirely practical, and under proper supervision possessed no source of danger, That amount of digitalis necessary to produce clinical improvement coincided with the amount necessary to produce vomiting and a fall in heart rate. These two phenomena might be taken as criterion that an optimum therapeutic effect had been obtained. Children with heart disease required an amount of digitalis per kilo of body weight, which was about 50 per cent. greater than would be required for adults. There were two indications for the use of digitalis in children. First, those who were suffering from heart disease and who were in a state of chronic cardiac failure. Second, those who had a regular rapid heart rate when that heart rate could not be slowed by other measures. Massive doses of digitalis were contraindicated in two groups of children with heart disease. First, those who had an acute infectious or toxic myocarditis; second, those who were suffering from acute cardiac failure with hearts that were overloaded.

Active Immunization Against Diphtheria.—Dr. ALBERT SNEDES ROOT of Raleigh, N. C., asked whether each pediatrician could not, or rather would not, see that active immunization was carried out in the schools of his city, whether this be large or small? In many cases he would be the only one who could properly perform and interpret the Schick test and hence the only one available for the work. If the work was thoroughly done and the school population largely immunized during the first year, the Schick test might be omitted thereafter and each incoming class immunized with toxin-antitoxin. This could be done by a nurse from his city's board of health. Park found that immunity was established in 80 per cent. of children who showed positive Schick test three months after the last dose of toxin-antitoxin and 90 per cent. six months after the last dose. It would be best to retest pupils who had received the treatment at the end of six months to be sure that their immunity had been established, and if not an additional dose of toxin-antitoxin given. This was not an absolute essential to the accomplishment of the work. Would not a concentrated effort on the part either of the pediatric society of each State, or if such an organization did not exist on the part of individual pediatrists in a State, to bring into reality through its respective State board of health such a plan as that which was proving so effective in North Carolina in the active immunization of the preschool child?

A Further Report of the Classification of Birth Paralyses as Endocrines.—Dr. LEE BEN CLARKE of Atlanta said that many cases showing mental or physical deficiency and birth paralysis were due to disordered functions of the ductless glands. No case showing mental or physical deficiency should be dismissed as hopeless until it had been definitely established that it did not belong to this group. It was probable that few, if any, infants who survived had been permanently injured at birth, and that the defectivity was entirely intrauterine. Early recognition followed by early and thorough treatment was necessary if the best results were to be obtained. *X*-ray studies of the sella turcica and complete study of the spinal fluid, including Wassermann, were invaluable in the differential diagnosis, since surgical conditions, *i. e.* pituitary tumors, etc., and syphilis must be excluded.

Intracranial Hemorrhage in the Newborn; Case Report.—Dr. EUGENE ROSAMOND of Memphis said the point of interest in this case was the occurrence of an intracranial hemorrhage in a cesarean baby, the absence of all external bleeding, the severity of the convulsions, their duration of thirty-six hours before efforts to stop the hemorrhage was made, and the prompt cessation of the convulsions when the bleeding was stopped. Thirteen other cases of intracranial hemorrhage seen in the past twelve months all responded promptly to blood therapy. Several did not get beyond the stage of pallor and restlessness, when the coagulation time was taken, and the true condition discovered. Only six cases showed external bleeding. Since a routine determination of the blood coagulability would reduce the mortality of the newborn practically 50 per cent., and, furthermore, since it would probably prevent a large number of the cases we now saw of birth palsies, it was well worth the extra time and care it would take to make this a universal, routine procedure.

Infections of the Urinary Tract, with Report of 400 Cases.—Dr. EDWARD CLAY MITCHELL of Memphis stated that a routine examination of the urine should be made in all acute febrile conditions in children, as early recognition and prompt treatment was of first importance. There was no specific treatment. Each case should be treated as an individual. Large amounts of fluid should be given in all cases. Search for all foci of infection. The alkaline treatment had succeeded best in his series, but was by no means infallible. Intestinal antiseptics, pelvic lavage and vaccines were of secondary value, and should not be discarded where the other methods had been tried and found valueless.

Direct Exposure to Tuberculosis in Infancy and Childhood and Its Relation to Manifest Pulmonary Tuberculosis in the Adult.—Drs. W. M. TAYLOR and L. J. MOORMAN of Oklahoma City said that childhood infection was almost universal. Heavy and moderate infection, especially in the first four or five years of life, depended upon the history of direct contact. After five years of age many cases showed heavy or moderate infection without a history of direct contact. This increase in the number of cases showing heavy and moderate infection after five years of age without a history of contact would suggest that massive or gross infection was not due to a single large dose of tubercle bacilli, but rather the cumulative effect of repeated small

doses. The *x*-ray was perhaps the most valuable method of determining the degree or extent of infection, but should be employed in the diagnosis of clinical tuberculosis only in connection with a thorough study of the history and a complete physical examination. There seemed to be a definite relation between childhood exposure and manifest pulmonary tuberculosis in the adult as shown by the fact that routine history taking showed childhood exposure in 62 per cent. of their 200 adult cases. This preponderance of childhood exposure in connection with adult cases, together with Bushnell's teaching that exogenous reinfection in the adult could not take place only in the presence of such a large infecting dose as to make it rarely, if ever, possible, and that the curve of tuberculosis morbidity rose with the increase of want and hardships, and fell with economic physical and moral betterment, strongly suggested reinfection from within rather than from without. They believed there must be many periods of mild tubercle toxemia between the date of infection and the discovery of clinical disease, and that many cases of so-called malnutrition, nervous instability, malaria, anemia, undetermined fever, etc., might be the result of such toxemia. Finally, since there seemed to be a definite relation between childhood exposure and adult tuberculosis, and that there were in all probability many vague symptoms in childhood which arose from tubercle toxemia, after having done what we could to prevent early contact with open cases, we should employ every possible means to determine the degree of infection, especially in contact cases, in order that those showing heavy or even moderate infection might have special observation and supervision with the purpose of safeguarding the child by improving the environment and by the early recognition of symptoms and signs, should they develop.

Infectious Diarrhea in Young Children.—Dr. RALPH C. SPENCE of Dallas, Texas, stated that these cases of acute diarrhea in infants and young children, whose onset was sudden with fever and prostration, and whose stool showed blood and mucus over a period of several days, were due to one of the two groups of dysentery bacilli, while those cases whose stools did not show blood and mucus were probably not due to the dysentery bacilli. This disease was infectious and strict quarantine precautions should be observed. If this was done the prevalence of this disease in this section of the country would be much decreased, and if correctly diagnosed early and properly treated, the existing high mortality from this disease would be greatly reduced.

Pulsus Alternans; Its Significance and Recognition by Ordinary Clinical Methods.—Dr. RANDOLPH LYONS of New Orleans said that it was obvious that from so small a number of cases no deductions were possible, but he had been impressed by the fact that if blood pressure readings were performed more carefully, bearing in mind the possibility of the presence of pulsus alternans, this symptom would be far more frequently detected by physicians in general practice than it was at present. This had been his own experience during the past year. Owing to the fact that many physicians took graphic records only of cases which showed an irregular cardiac action, the presence of pulsus alternans frequently eluded them, for here the pulse might be regular with little or no acceleration. Furthermore, pulsus alternans might be very transient, rendering the taking of graphic records impractical in many cases. The careful use of the auscultatory blood pressure method in all cardiorenal cases, especially accompanied by hypertension, would be of great value in detecting this condition. The error of confusing the regular occurrence of late extra systoles (pulsus bigeminus) with alternation of the pulse was the chief pitfall. It might be possible in a certain proportion of cases to differentiate positively between the two conditions without graphic records. According to White and Lunt, the error of confusing pseudoalternation with true alternation, using the auscultatory blood pressure method, was about once in six times. It was possible that this error might be further reduced if one bore the following points in mind: (1) In pulsus alternans, upon listening over the bend of the elbow at the time when all beats were heard, the sounds were perfectly regular, whereas, according to Mackenzie, in the cases of pulsus bigeminus there was always a delay after the weaker beat. (2) In pulsus alternans, on auscultating the heart, it was extremely rare to note any difference in intensity of the strong and weaker beats, while in the case of regular premature contractions the premature beats were apt to be less intense. Undoubtedly, errors would creep into any of the clinical blood pressure methods, and even admitting that a mistake might be made in one out of six times, this percentage was not so great as to rob it of value, and should act as a stimulus to check such observations by graphic tracings. The auscultatory blood pressure method would, in a few instances, detect a slight alternation where tracings failed to reveal it. The delicacy of the method was demonstrated by the fact that an alternation of only 5 mm. of Hg. could be detected. Furthermore, in two patients it was possible to recognize the diastolic pressure of the alternate strong and weak beats and thus determine their pulse pressure independently. The importance of detecting pulsus alternans was very generally appreciated, but the gravity of this ill-omened symptom depended upon its persistence and association with other signs of cardiorenal insufficiency. Finally, its presence demanded the removal of any exciting cause, as physical strain, infections, and toxemias, where possible, and was, in general, an indication for digitalis therapy.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON PEDIATRICS.

Stated Meeting, Held October 13, 1921.

DR. MINER C. HILL IN THE CHAIR.

Ritter's Disease with a Fatal Termination following Tonsillectomy.—Dr. JAMES HOYT KERLEY reported this case, in which he said that Ritter's disease or exfoliative dermatitis, strictly speaking and as described by the author, was a disease of the first few weeks of life. The following case, however, so strongly resembled in its symptomatology the above mentioned disease that he had placed it under that terminology. Ritter's disease consisted primarily and essentially of inflammation of the skin with exfoliation, the formation of vesicles being only a secondary symptom. The disease usually began on the face, at the angles of the mouth, and under the chin, but might begin on the abdomen or genitals. The first change was a bright diffuse reddening and swelling of the skin, which gradually spread over the entire body, resembling erysipelas at this stage. The skin of the affected part looked thicker and more transparent as though the horny layer had been swollen and macerated by long applied warm and moist compresses. The epidermis became loosened from the corium so that there was a vesicular bulging of the former. Large areas of superficial skin appeared to be soaked in serous fluid and a condition of epidermolysis and exfoliation followed. The course of the disease varied. It might spread rapidly over the entire body so that in a few days the skin might hang in shreds, exposing almost everywhere a very red and livid corium. Infants so affected died within a few days, or the course might be slower, the disease remaining at its height for over a week, then subsiding slowly and ending in recovery. It was difficult to separate this disease from acute pemphigus. Ritter's disease, however, was marked more by exfoliation and pemphigus by exudation. The latter disease did not begin with an erythema and its vesicles were outlined by a well defined border, while in dermatitis exfoliativa the inflammatory borders were rarely round, but were ragged and irregular in outline. The clinical history of the disease justified its being considered of a septic nature. Staphylococci were usually found in the skin and generally in the blood also. Although we might not be sure where the infection entered there was every probability that bacterial processes played the most important part in exfoliative dermatitis.

The present case was that of a boy 2 years old who had had his tonsils and adenoids removed four weeks before coming under observation. The operation was followed by otitis media. The temperature during this time was of a septic type, ranging from 104° F. to normal. On physical examination the child appeared very

septic and in a moribund condition. The eyes were glazed. The bases of the tonsils were red and swollen; ears perforated, but no sign of mastoid involvement; ulcerative stomatitis was present. The heart sounds were faint; lungs negative; spleen and liver not felt. About the mouth and chin were areas of coppery discoloration. Patches of livid eruption were present on the face and scalp. On both shoulders were large pemphigoid areas which had ruptured. Dark brown erythematous lesions were on the arms, trunk, and extremities, with remnants of blebs on the trunk. Smaller hemorrhagic patches, livid in color and bluish, were over the temples and on the body. The urine showed innumerable pus cells and a heavy trace of albumin. The child was too ill for a blood culture. The temperature was 101°. The diagnosis of dermatitis exfoliativa (Ritter's disease) was made. The history and physical findings of this case pointed strongly to a systemic hematogenous sepsis resulting probably from absorption of bacteria or toxins from the operative wound. The discoloration of the face, coppery colored, the livid areas on the face, head and body, and the pemphigoid condition of the skin strongly resembled what was seen in the new born as dermatitis exfoliativa (Ritter's disease).

Dr. HENRY KOPLIK stated that he had seen this patient. It was a case of the kind he had seen in infants, although this child was two years of age. The conditions as described by Ritter was really a septic condition which was observed at the foundling hospital in Prague. Epstein, the chief of the service, later made the statement that this disease was gradually disappearing from the institution. In other words, that as hygienic conditions improved Ritter's disease went out. The name Ritter's disease should be limited to the condition described by Ritter, but Dr. Kerley's case so closely resembled Ritter's disease, and followed tonsilectomy and otitis media, that it seemed proper to give it this name. It was the only case of the kind he had seen in a child of this age.

Dr. MINER C. HILL asked Dr. Koplik whether he had seen any of these cases get well.

Dr. KOPLIK replied that about 50 per cent of the cases among the new born recovered.

When Shall the Membrana Tympani be Incised, and When is Reincision Indicated?—Dr. WALTER LESTER CARR presented this paper, in which he urged that a routine examination of ears and throat be made in all infectious diseases, and in every condition where there was a question as to the cause of irregular high temperature with or without local pain in the ear. A child might have pain without a rise of temperature, or at most a degree above normal, or there might be restlessness or irritabiliity without temperature and pain. Examination must be made with a good reflected light after the external canal had been wiped clean. The necessity for this examination was shown by the fact that every physician was liable to be chagrined by the report that "the ear burst in the night." He had had such an accident in children with acute poliomyelitis and in bronchitis when he had not anticipated it. If the tympanum was found to be red and bulging the decision to open the drum should be made at once, especially if the child had a rise in temperature and pain. When there was congestion and bulging, as was seen in scarlet fever, the advisability of myringotomy might be determined, in part, by the state of the pharyngeal tissue. If the structures of the tonsils and pharynx were reddened and swollen so that there was blocking of the outlet of the Eustachian tubes an incision of the drum might be advisable. It might be possible to abort such a condition by the use of adrenalin solution, 1 part to 4 or 5 of normal saline solution instilled into the nares so that it came in contact with the swollen Eustachian tubes. An incision of the drum was not, however, the whole treatment. In addition to irrigations of the external auditory canal, local applications to the pharynx and tonsils of argyrol or a similar preparation were essential to get the best results of drainage from the cavity of the middle ear. Where there was an acute infection of the middle ear, as in pneumonia, tonsillitis, influenza, etc., the pediatrician was almost always willing to incise the drum or have it done by an otologist, as he realized that to allow the infectious process to damage the structure of the middle ear would cause changes in the drum membrane and ossicular joints and might allow the disease to extend to the mastoid process. Although a patient could not be protected against a mastoid disease which might be occasioned by a systemic infection it was possible to give some drainage through the external meatus. In children who had an earache associated with mild catarrh, nasopharyngitis, hay fever, or gastrointestinal disturbances, decision to open the drum should be determined by the symptoms of the individual child. One who was nervous and high strung and who had pain and slight elevation of temperature might be better for having the ear drum incised even when there was not much bulging or congestion. Many nervous children got comfort from the application of local heat, or argyrol to the nasopharynx, and from instillations of warm boric acid solutions into the ear. Medicinal agents such as calomel were of service, and small doses of codeine, antipyrin, sodium bromide, and belladonna gave comfort. The instillation of warm oil was not helpful and might be detrimental. The writer had found some benefit when novocaine and adrenalin solutions had been dropped on a congested tympanic membrane, but he had not depended upon these agents alone, and was unable to state how useful they were. In his experience patients who had relief only when chloroform vapor was blown into the ear required incision. At the New York Eye and Ear Infirmary the organisms found in smears after incision of the drum were streptococci, pneumococci of the different groups, Friedlander's bacillus, staphylococci, and *B. catarrhalis*. When cultures were made care must be taken in method and media or staphylococci might overgrow other organisms and give rise to a faulty interpretation. Recision might be required if a primary incision had not been free enough for drainage and when infection and swelling of the Eustachian canal blocked the way to the pharynx. Reincision was indicated particularly when there was sagging of the wall of the external auditory canal, even if no other symptoms of mastoid disease were present. Reincision must be made if the tympanum showed the same condition that necessitated primary operation, namely, pain, bulging, and elevation of temperature. Reincision might be indicated in children of poor vitality where drainage from the middle ear was imperfect even after removal of hypertrophied tonsils and adenoids. In all children in whom an incision had to be made in the drum membrane there was no excuse for omitting the removal of tonsils and adenoids even when these structures did not show a great degree of infection and obstruction. Children of low vitality needed also hygienic and tonic treatment There were cases in which mastoid symptoms were present in which the otologist and pediatrist would have to decide whether the incision should be made or the mastoid cells excenterated.

Dr. JOHN R. PAGE expressed the opinion that Dr. Carr had stated the situation very well indeed from the standpoint of the otologist and that he had no disagreement with the views expressed. He had been led to believe that most pediatricians were much less radical, if those statements were considered radical. The otologist and the pediatrician disagreed on this question for the same reason that they did not always agree as to when it was best to open the mastoid. The ear man from his association with complicated cases had the danger of delay impressed upon him so forcibly that he would rather err on the safe side than open too late, feeling, as he did, that harm practically never resulted from an early paracentesis. The children's man doubted this, and advanced as an argument against it the danger of infection from outside, having in mind when he did, not a paracentesis but a free incision for drainage, a U-shaped incision, etc., so much talked about but so seldom performed, while the ear man had not this in mind at all. If he saw evidence of marked involvement, with infection, he made a free incision from below upward in the posterior part of the membrane and evacuated the contents; but if he found the membrane retracted and reddened, with the patient in pain he did a paracentesis (nothing more) with a small knife, which was sufficient to relieve the pain and let any extravasated serum escape that might be present. The early cases of otitis media had a negative pressure in the tympanum and in some cases the

pain was as acute at this stage as it was in others from fluid under pressure. Just as a dry cup produced a hyperemia of the skin and, if its use was prolonged, hemorrhage and exudation, so would negative pressure in the tympanum cause swelling and congestion of the mucous lining and extravasation into the cavity. A minute opening into such a drum relieved the situation immediately and almost invariably. The chance of carrying infection through a thin membrane into such an air chamber with a sterile knife was very slight and not to be compared with the danger of lumbar puncture, so often considered harmless. Of course, if a U-shaped flap was going to be made and fluid syringed through into the throat, as some thought advisable, a careful man would rather take the chances with nature than to submit the child to such heroic treatment. In any case in which the membrane could be seen through a speculum, the canal could be cleansed and filled with alcohol and the drum entered with the point of a small sterile knife with no more fear of outside infection than in a lumbar puncture, and it was surprising to learn that beyond the knife and the speculum these precautions were not always regarded as necessary by some who performed myringotomies. In cases in which the canal was so swollen that the membrane could hardly be seen and the knife had to be passed in contact with the posterior wall as a guide and the drum opened blindly, then of course there was a greater chance for infection, but these were cases in which the process was usually well established and there was little doubt of the necessity for incision. Still, even where the swelling was marked, packing the canal with cotton moistened with alcohol and allowing it to remain in place for five minutes would squeeze out the edema and give a good view more often than was realized by many. A paracentesis or myringotomy could not be performed satisfactorily with the infant held in the upright position, for in that position one could not see well what he was doing nor properly cleanse the canal; if the child when properly swathed could not be held still on the table, it could be given a little whiff of chloroform unless there was some very positive contraindication. Dr. Page said he did not wish to be understood as saying that he opened every drum membrane that he met. On the contrary, he frequently advised waiting, but he kept in close touch with such patients and would not allow the ear to be irrigated with hot water so as to render it impossible to tell how much the increased redness was due to hot water at 110° F. It was fortunate for patients that the directions for hot irrigations were usually so poorly carried out that the water did not reach the drum, for it was likely to make them dizzy and seasick from the caloric action on the labyrinth. The canals, however, were usually swollen by it and it created doubt about the membrane itself. A hot water bag masked matters less, and, while it did not divert the patient to the same extent, it probably afforded as much relief. Much relief seemed to be obtained by some patients through intranasal drops of adrenalin, argyrol, etc. Despite the opposition, he felt that he obtained more certain ventilation of the drum and more prompt relief from pain by the small, precise, careful and, as Dr. Gruening used to say, "in my hands," harmless perforation of the drum. In regard to reincision, it might seem necessary a day or two after the first paracentesis, if in an ear in which the infection was well established, the drainage was insufficient and there was some doubt as to whether a proper incision was made to meet the condition in the first place. It could do no harm and it frequently did good; but repeated incisions made simply because the drum bulged were useless in a well-infected ear. A membrane could be cut to ribbons and it would still bulge, not from retention but from swollen mucosa in the region of the additus and from granulations in the tympanum. Dr. Page appealed to children's men in hospital practice to note all running ears in children that had been cured of the various diseases for which they were admitted, and urged that the house physician should stamp on the cards of these patients that they had a purulent otitis media and should be referred by the office to a proper place for observation and treatment. If this were done there would be fewer cases turning up with the membranes sloughed out by prolonged discharge.

Limitations of the Reincision of the Tympanic Membrane.—Dr. SAMUEL J. KOPETZY and Dr. ALFRED A. SCHWARTZ presented this communication from the Otolaryngological Department of Beth Israel Hospital. They stated that, employed early and properly performed, the value of incision of the membrana tympani as a surgical procedure admitted of no discussion. Due to factors other than the establishment of drainage a certain percentage of cases developed into the type of mastoiditis calling for operative interference in spite of early drum incision. In an effort to prevent this development, a great many physicians—and in this class must be included a number of otologists—incised the drum membrane repeatedly. They argued that if it were true that simple incision of the membrana tympani gave complete relief in certain cases of otitis media, then surely in cases in which the disease showed a tendency to spread further than the confines of the middle ear and antrum a second incision might increase the drainage obtained; and so they continued on until perhaps shredding of the drum was accomplished in the vain and illogical effort to drain diseased regions which were out of reach of surgery applied to the middle ear. The writers contended that paracentesis or repeated paracentesis could not prevent or cure operative mastoiditis. Only in young infants could reincision of the drum-head be logically employed, and this because of the rudimentary and undeveloped mastoid process. Bearing in mind this one exception, their contention found further support in a study of the pathology of mastoiditis, the mode of infection and the clinical course of acute purulent otitis media. Did one but visualize the stages and evolution of the pathological lesion in every case as it was presented to him, the chances of misjudging the necessity of repeating incision of the drum-head would be lessened. Too often the clinician did not do this. It was of no avail to repeatedly incise a drum-head to evacuate pus and to attempt to prevent an operation on the mastoid process in the type of case in which the clinical history, bacterial flora and general aspect were such that one was reasonably certain that it fell within the group type termed "hemorrhagic mastoiditis." In this type the infection was not walled off as in the coalescent type, but the dilated blood vessels rapidly carried the infecting organisms throughout the mastoid and, unless the process was promptly and completely checked, even further, into the sinus, meninges and brain. This form had been rightly called the dangerous form of mastoiditis, and its prompt recognition was imperative for the preservation of the patient's life. Yet, strange as it might seem, it was this type that most frequently was overlooked by the attending physician. The patient complained of pain in the ear, and there was a high temperature, 103° or 104° F. Paracentesis was promptly and properly performed, a free incision being made into the membrana tympani. Much to the surprise of the attendants on the case, there was only a slight seropurulent discharge from the middle ear, the temperature had again gone up and the patient was distinctly ill. There might be slight mastoid tenderness, not sufficient to occasion alarm. Another paracentesis was performed; then, perhaps, a day later, another. In the meantime the mastoid infection had continued unchecked, and complications with symptoms referable to the sinus and meninges put in appearance. This picture was not overdrawn, for it had been observed time and time again during the past two years, especially during the recent influenza epidemics. In these cases valuable time had been lost, repeated paracentesis had not prevented the operativemastoiditis, and the patient's life had been greatly endangered. A slight discharge from an incision of the membrana tympani might mean not an insufficient opening, but a virulent infection. In this type of mastoiditis there should be borne in mind another factor, namely, the simultaneous involvement of both middle ear and mastoid where both demanded surgical interference from the onset. In the so-called coalescent type of case, where drainage was profuse and inspection revealed that the incision of the drum-head was adequate, and the pus came away in pulsations, too profuse to be considered as coming from the tympanic cavity, nothing was accomplished by reincising the drum, and other problems than drainage were demanding solution. The fact to be stressed was that the physician should

familiarize himself to a greater extent with the types of acute purulent otitis media and of mastoiditis. Let this knowledge become more general, and agreement upon the surgical procedures to be employed would soon ensue. When, after the delay occasioned by the attempts to cure the mastoid disease by reincisions, the patient finally came to operation, the disease might be far advanced, with marked destruction of the mastoid structure, and the drum might be shredded or practically destroyed. Hearing was markedly impaired in many cases treated by reincision. It had been claimed that the drum membrane was not essential to hearing. Functional tests proved the fallacy of this contention. In a cursory examination of their office records the writers had found as many as eight cases that eventually came to operation after having been previously subjected to three, four, or five paracenteses each before coming under their care; and in some of these all the paracenteses were made during the first seventy-two hours. Not only was mastoiditis not prevented in these cases, but in three septic thrombosis developed, and one died of a suppurative meningitis. A large number of their cases of chronic suppurative otitis media traced their origin to an acute attack where repeated paracenteses were performed. Many were now in such a condition that they could not be cleared without the radical operation. There were others where the drum membrane had healed and the middle ear was dry. The multiple scars were frequently adherent to the middle ear structures and there was loss of mobility of the ossicles, resulting in marked impairment of hearing and tinnitus. It would have been much better in these cases to have drained the antrum from behind or eradicated the disease in the mastoid process and to have prevented the chronic diseases from gaining a foothold. For a simple mastoidectomy should leave the hearing unimpaired and markedly diminish the risk of further complications.

Dr. MINER C. HILL said they had formerly been taught that whenever there was a bulging drum membrane with elevation of temperature and pain the drum membrane should be incised. In children pain was not always manifested, unless it might be by irritability. Again, some drum membranes that required incision were retracted as well as bulging. During the epidemic of influenza he had seen a hundred of these cases of otitis media with slight bulging that cleared up without incision.

Dr. WENDELL C. PHILLIPS mentioned two points in connection with the remarks made by Dr. Page and the reader of the first paper in reference to the subject of paracentesis that he said he felt could be brought out in a clearer manner. He regretted that he could not follow Dr. Page in all his contentions. He had been led to believe by long experience that there were two distinct types of middle ear involvement not only in children but in adults. There was one with severe, lancinating pain, which caused a baby to cry out and an adult to say he was suffering considerable pain, temperature and a bulging of the drum membrane. This was the purulent type. The other type was the catarrhal type, in which the symptoms were not marked. It was usually caused by an obstruction; there was negative pressure and a retracted ear drum. One should keep the knife away from this type. In the purulent type the drum membrane was usually red, but not always, and this type should always have paracentesis. Dr. Phillips said that being a teacher he was likely to be arbitrary in what he said; it was his opinion that catarrhal otitis was always catarrhal otitis, and never became purulent, while purulent otitis media was always purulent and never become catarrhal until cured by paracentesis. As a rule purulent cases did not get much relief from repeated paracentesis. If incision did not do its work at first, as a rule it never would do it. By this he did not mean that one should never do a second paracentesis, for all otologists occasionally had to make a second incision to comply with the insistent requests of the family, but in such cases it was simply a postponement of the time when an operation for mastoiditis had to be performed.

Dr. L. E. LA FETRA said it always seemed to him the otologists took a very pessimistic view when they saw a bulging drum membrane. He was sure all would agree that if a child had a high temperature and a bulging of the ear drum persisting beyond twenty-four hours, and with these signs increasing, that the drum membrane ought to be incised. But many red, swollen and bulging ear drums cleared up without incision even when the bulging was distinct in all parts of the drum membrane, so that bulging was not an absolute indication for paracentesis; he understood fully the danger of fulminating mastoiditis and its complications. He had had a large experience with otitis media with the mastoid tip involved, and had seen many clear up without incision of the drum, so he could not subscribe to the early incision. If, however, after twenty-four hours the bulging and the temperature had increased, one should not wait any longer because the danger of mastoiditis was so much greater than the danger of simple incision of the drum that no one should hesitate as to which to choose. In regard to second incisions of the drum membrane, he was inclined to agree with the otologists that if one made a free incision the first time, and there was very little discharge, together with a persistence of the symptoms, one must look for trouble in the mastoid. If the incision become small and the discharge persisted reincision was indicated. One thing must be emphasized, that was that in children a vacillating temperature, high leucocyte count and high polymorphonuclear count did not necessarily mean mastoiditis, nor did it mean sinus thrombosis. One must be guided by other symptoms than the temperature and blood count, particularly in influenza otitis. The indications for mastoid or sinus complications should be found in the otological manifestations and in the results of successive blood examinations, rather than in the course of the temperature.

Dr. CHARLES HENDEE SMITH, speaking of the cases that needed reincision, agreed with the otologists that one should not make two or three incisions within the first two or three days simply on account of a persistent fever. There were cases, however, in which the drums healed before the otitis had entirely cleared up. He had seen such cases which at the end of some days required reincision, and cleared up then.

Dr. KOPLIK stated that he examined the ears of every child who came to his office. One met with cases of otitis without temperature, some with absolutely no temperature above 100° F., and the babies were quite sick. There might be bulging of the drum, but sometimes pus was present with very little bulging, and the child had a temperature of 98½°, and in others a serous exudate. In some cases the ear did not bulge but was a little flat, and there was a distinct pus reflex. Why allow the baby to lie for twenty-four hours waiting for relief? If the drum was bulging he would not hesitate to incise it and incise it freely, although in a great many cases the exudate resolved if the drum was left alone. However, if pus was there, even if the drum was not bulging, if left to resolve the hearing might be impaired. He thought the otologists would recollect having seen cases in which a mastoid operation had been advised and rejected by the parent and reincision had cured them with a very good drum and the children were perfectly well afterward. There were cases that would get well with reincision and cases that would not. In order to distinguish between these two classes one must have large experience.

Dr. FRANCIS J. QUINLAN said he thought the time was ripe for a discussion of this kind which should have not so much the enthusiasm of youth as the wisdom of age. He had heard what Dr. Page had said with much satisfaction and a little suspicion. He had spoken of ear ache at night. In years gone by he had seen many cases of ear ache due to the recumbent position which favored obstruction of the Eustachian tube. The tubal membrane became congested and there was hyperemia of Schrapnell's membrane. That condition did not need incision. For all incision of the drum membrane was said to be a very simple procedure, it might cause luxation of the stirrup and dislocation of the incus; accidents of that kind had happened even in the hands of great experts. By applications one might expedite the depletion of the muscles of the Eustachian tube and the capillaries of Rosenmüller's fossa and re-establish the normal circulation of the ear. When the drum was pushed downward and forward and there was evidence of the presence of pus, it was timely to incise.

Dr. SIDNEY VALENTIN 'HAAS said it took some courage to speak against early paracentesis, nevertheless he would like to relate his personal experience beginning fifteen years ago. It was taught at that time that unless the drum was incised early a mastoid operation would probably become necessary. In one family there were three cases of otitis media which were opened within the first twenty-four hours, and two of these had to have a mastoidectomy. That made him believe that if one waited for a short period it might be no worse. From that time he began to wait, increasing the intervals, and at the end of ten years he had no hesitation in waiting days. He was sure *early* paracentesis was not only not indicated but actually harmful. It was better to wait three, four, or five days than to make the incision during the first twenty-four hours. For the pain there was nothing that worked better than opium. Certainly the taking of an anesthetic was as bad as the short period of pain, which could be relieved by paregoric. Incidentally the primary pain when relieved only rarely recurred. He was speaking not only of congested ear drums, but of tender mastoids in patients with a high temperature. Dr. Haas recalled a case which Dr. Page and he had seen together. Dr. Page was called on the fourth or fifth day to do a myringotomy and had objected greatly to the delay. The infection in this case was a *Streptococcus mucosus*, and although the mastoids were involved they cleared up quickly. In the last four or five years he had not had a case of operative mastoiditis by following this policy of waiting. This did not mean that he would not have any cases of operative mastoiditis, but it did show that complications were not incurred by waiting. It was quite remarkable to see how these bulging and inflamed drums would subside without incision under hexamethylenamine and argyrol. Finally, one could judge by the appearance of the nasopharynx as to the progress of the process in the ear. The temperature dropped to normal long before the bulging subsided. The improvement in hearing was also a guide as to the conditions existing in the middle ear. There had been no case of impairment of function following his policy of waiting.

Dr. SEYMOUR OPPENHEIMER expressed the opinion that they ought to be able to strike a sane attitude on this subject. In his judgment myringotomy was performed too frequently. He observed so often, in children admitted to his hospital service with some pulmonary infection or gastrointestinal disturbance, that almost uniformly the ear drums of these patients had been opened by the house staff or visiting staff. Most of these children had had reddened drums, but that did not indicate the necessity for myringotomy. The only indication was the evidence of an exudate in the middle ear space; indication might occur on the first, second, or even tenth day. The temperature did not enter into it, but it was the appearance of the drum membrane that was the guide. Exudates ofttimes formed very rapidly and at the time of examination myringotomy did not seem necessary, and then some hours later one was mortified to find that a perforation had occurred; that was something that could not be helped. As to the question of reincision, much depended upon the type of treatment employed after the original myringotomy, provided, of course, the myringotomy had been properly performed. Unfortunately, there was an impression that myringotomy consisted in nothing more than a stab. It should be an accurate surgical procedure and properly placed. In the after treatment it was most important to keep the incision patent and the middle ear freed of secretion, and for this purpose the employment of negative pressure by a simple suction apparatus was most satisfactory. If that type of treatment was employed the necessity for reincision of the drum would be much lessened. Dr. Oppenheimer disagreed with Dr. Haas' views. The question of the virulence of the particular infection in the individual case was all-important. The question of proper attention to the canal of the ear was of the greatest importance, and it was distressing to see men pay so little attention to asepsis and the surgical preparation of the ear canal and the ear prior to the incision. This brought up the question as to whether infection could be carried from without. Dr. Oppenheimer expressed the opinion that it could be so carried unless aseptic precautions were taken.

Dr. PAGE said there was as much difference of opinion on the subject of opening the ear drum among otologists themselves as there was between the otologists and the pediatricians, and as much difference of opinion among the pediatricians as among the otologists. There was equal support on both sides of the question from both groups of men.

Factors Determining That a Simple Mastoidectomy Is Indicated, in the Nonacute Stage of Middle Ear and Mastoid Infections.—Dr. HENRY KOPLIK read this paper.

A Further Report on the Treatment of Persistent Otorrhea in Infants and Young Children by the Establishment of Postauricular Drainage.—Dr. WENDELL C. PHILLIPS presented this communication. He stated that eight years ago he had had occasion to outline the results of a series of studies regarding the more or less chronic purulent middle ear suppurations occurring during infancy and early childhood. Those studies were based on a large clinical experience, both in private practice and in his various hospital services. At that time he defined two distinct types of this particular affection as follows: (A) The persistent type, and (B) the recurring type. The persistent type applied to those cases in which an acute purulent inflammatory process invaded the middle ear spaces, and continued without abatement for an indeterminate period after the usual five to thirty days, which ordinarily might be considered as its normal course. This type of purulent otitis media should be clearly differentiated from the more common and recurrent type, in which recovery usually took place from each attack only to be followed by recurrence at varying intervals, or whenever the child became the victim of an acute nasal infection. In the recurrent type the children were almost invariably victims of diseased tonsils and adenoids, and their attacks usually ceased upon the removal of these offending tissues. The recurrent type, therefore, might be eliminated from this discussion, inasmuch as it hardly might be classified as non-acute in character unless, as a result of neglect to remove the diseased tonsils and adenoids, the otorrhea might finally become persistent and chronic in character. The persistent type of cases furnished a history somewhat as follows: During the course of an infection involving the upper air passages, or as a complication of certain chronic diseases, an acute ear suppuration appeared. Weakened by the primary general acute infection, the child's resistance became lowered and in many instances it was probable that some underlying dyscrasia, known or unknown, played its part. Earache followed, which might be relieved by a paracentesis, and from the onset the discharge was profuse, persistent, and of a character which plainly bespoke a severe type of infection. Mastoid tenderness was present and positive during the first few days, but might gradually disappear, unless the case was destined to become an acute mastoiditis requiring immediate operation. A large percentage of cases, however, showed a moderate diminution in the quantity of the discharge from the third to the seventh day, but it never entirely ceased. The temperature might gradually become normal, or nearly so, pain was not present thereafter as a prominent symptom, and there might be no marked drooping of the posterior-superior canal wall. The usual local measures of treatment consisting of paracentesis, cleansing, catharsis, and rest in bed, might have been carried out, but often clinic patients had received no treatment at all. In short, the case became one of chronic purulent otitis media, its significance being otorrhea, which continued without abatement. To the observer it became evident that the small tympanic cavity proper could not secrete the amount of pus which flowed from the ear, and that the mastoid antrum at least must be involved in the inflammatory process. Furthermore, it was evident that when such a discharge continued for a period beyond the end of the fourth week the element of chronicity had become established. It was also true that proportionately a large number of these persistent otorrheas occurred among the poor and ill-nourished applying for treatment in the hospitals and dispensaries. Of the underlying dyscrasias which served to prevent nature's efforts at repair, tuberculosis and syphilis were the most stubborn to deal with. Exami-

nations of the discharge and scrapings from a considerable number of this type of patients were examined for tuberculosis with positive results, even in cases in which no evidence of general tuberculosis existed. In this particular type of otorrhea even the removal of the tonsils and adenoids did not serve to terminate the aural discharge; neither did repeated paracentesis serve any purpose. The disease remained chronic, and unless relieved by surgical measures it progressed for long periods with serious impairment of hearing and often with fatal complications. It might be true that after long periods, even years, some of these cases did discharge spontaneously, but not until after extensive destruction had taken place with permanent impairment of the hearing. Regarding the treatment: All reasonable measures should be faithfully carried out for a reasonable period, which might be for a month to six weeks, this to include free drainage by paracentesis, a clean regime of local treatment, and attention to hygiene and general health. All these measures having failed, it was the writer's opinion that the quickest, safest and most rational measure to pursue was to establish postauricular, and hence through and through drainage by means of the simple mastoid operation. This was his conviction expressed eight years ago, and this opinion was based upon 20 or 25 operations. The lapse of years and the further study of cases, together with 100 operations performed by himself and his assistants, had in no way changed this conviction. In well-defined cases of chronic otorrhea of the type above described, he had never failed to find disease of the mastoid process, and had rarely failed to note the free escape of pus through the opening in the cortex at the time of operation. It must be remembered that these cases failed to exhibit almost all of the classical symptoms of mastoid involvement, except the discharge; yet upon operation all furnished evidences of extensive disease of the mastoid cells. Briefly stated, the reasons for advocating the simple mastoid operation in these cases were as follows: (1) It quickly terminated an otherwise persistent otorrhea. (2) It insured against an extension of local bone necrosis. (3) It relieved the patient of the dangers of possible serious and fatal complications, such as meningitis, brain abscess, and lateral sinus thrombosis. (4) Finally, the most important reason of all was the retention of the hearing function. It was scarcely necessary to add that this operation was not a dangerous one; neither was its slight seriousness to be compared with the dangers and discomforts attending a chronic aural discharge, and particularly the threatened deafness. It should be added that in the more chronic cases the simple mastoid operation had occasionally proven insufficient and a subsequent radical operation had become necessary.

Dr. EDWARD LEE MEIERHOF considered the question when an infection of the middle ear, accompanied by a flow of pus, became acute in an infant or young child. Was this to be determined by the absence of reactionary symptoms—principally fever and evidences of pain, either spontaneous or produced by pressure over the mastoid, or by traction upon the auricle, sometimes accompanied by restlessness during the sleeping period? If such were the case one would have to wait a very long time in many cases before the nonacute stage had arrived—or should one be governed by the element of time? The time element must be considered, because some cases would run their course and recover in from one to three weeks, even when untreated or badly treated. Also cases might recover after many weeks of purulent activity. Referring to mastoid involvement, Dr. Meierhof said that in his judgment every infection of the middle ear, especially in infancy and childhood, involved the mastoid antrum. Many knew of cases where there were distinct evidences of mastoid involvement which had recovered, operation having been advised but refused. In a child having a long-standing pyogenic infection of the middle ear, if the patient had no urgent symptoms and had not been properly treated according to one's judgment, then the child should be given the benefit of such treatment as had yielded successful results. If the patient showed no signs of improvement within a few days, no time should be lost in opening the mastoid, whether there were symptoms of mastoid involvement or not. The time had passed when the advisability of opening the mastoid was dependent upon vital indications. The preservation of hearing alone was sufficient ground for arresting the destructive pyogenic process, especially so when due to violent types of infection occurring in the course of scarlet fever, diphtheria, pneumonia, and other infectious diseases. Even a staphylococcus infection in a non-resistant individual could be as destructive as the more virulent types in others. In trained hands the danger from opening the mastoid was reduced almost to a minimum, but in spite of this one still had to encounter the fear and prejudice of an operation on the part of the family and, knowing this, one often postponed telling them what one's real judgment was. The factors that gave rise to an indication for a simple mastoidectomy in the nonacute stage of middle ear and mastoid infections were evidences of mastoid infection which were apparent. If the case was one of long standing without mastoid symptoms, but showed no signs of yielding to approved treatment—with or without the presence of symptoms other than discharge—operation was also advisable.

Relation of Diarrhea in Children to Otitis Media Purulenta.—Dr. HERMAN SCHWARZ read this paper, in which he asserted that over 90 per cent. of the cases usually classed as gastrointestinal, and associated with fever of one, two or three days' duration, had primarily nothing to do with the intestines. The intestinal symptoms were all secondary. One never met with a temperature due directly to the intestinal condition unless there was blood and mucous in the stools. If a child had an otitis media and diarrhea, mucus in the stools and vomiting the rise in temperature was not caused by the intestinal condition but by the otolaryngological condition. Hence in cases of this class the use of cathartics and high irrigations were useless, when the real cause of the trouble was in the ear. Another form of gastrointestinal disturbance was persistent vomiting. He had seen children with an elevation of temperature and vomiting for several days in whom a diagnosis of acidosis was made. These patients did not have diminished carbondioxide and the hydrogen ion concentration was normal. The condition was *not* an acidosis, but a parenteral condition secondary to otitis media or any other infection. The condition was no different when secondary to otitis than when secondary to other infections. In cases of marasmus it was well to bear in mind the possibility of an otitis media. The gastrointestinal disturbances associated with otitis media were probably not a real bacterial infection, but were more likely due to bacterial toxins or some unexplained form of toxemia. The first symptoms were loss in weight and restlessness, with perhaps a slight rise in temperature. If the physician did not look into the child's ears he would probably fail to recognize that the condition was a secondary and not a primary one. When the physician neglected to examine the ears, if the child was an infant he usually changed the formula. If the child was older nature usually took care of him. He did not wish to eat. However, it was not necessary to starve children with this type of gastrointestinal disturbance. They could take a fairly well balanced diet. In babies nature reduced the food by the vomiting and diarrhea and we could assist nature by reducing it still more. When the infection cleared up the ability to digest food returned, but in the infant at this stage one should go slowly and wait for the return of appetitie. In treating cases of parenteral infection malt soup was one of the foods that the child took well, and one could give it without fear of giving the child a real enteral infection, and in this way bring it gradually to take other foods.

Dr. TRUMAN L. SAUNDERS said that Dr. Schwarz had so completely discussed the subject that it simply remained for him to emphasize the fact that there was a distinct relationship between otitis media and disorders of the digestive system. This had been forcibly brought to their attention in the clinic. Children were brought to the clinic suffering from disturbances of the digestive apparatus and improvement in the gastrointestinal condition did not take place until the ear was opened. If this fact was recognized physicians might benefit many cases of gastrointestinal disease by making it a part of their routine to examine the ears of children.

Miscellany.

EXCERPTS FROM LITERATURE ILLUSTRATIVE OF THE POPULAR DISTRUST OF THE MEDICAL PROFESSION.

By EDWARD PODOLSKY,

BROOKLYN, NEW YORK.

If it is possible to perfect mankind, the means of doing so will be found in the medical sciences.—Descartes.

Medicine has been defined to be the art or science of amusing a sick man with frivolous speculation about his disorder, and of tempering ingeniously, till nature either kills or cures him.—Anon.

MEDICINE, of all human endeavors, is by far the most ancient and sacred, for it, above all, is dedicated to the ministrations of the human body, man's most concerned and sacred possession. This, perhaps, should serve to immune Medicine from anything undesirable, either in the form of active attack, or distrust expressed by words. But strangely, it has not, for almost from its inception, Medicine has been the target of all sorts of vilifications and abuses. What, then, should be accepted as the cause of the existence of this strange psychology?

Aside from the too prominent allegations that physicians, under pressure of economic conditions, resort too often to illegitimate uses of their profession, and that physicians often misuse their patients in search of scientific truths, the real cause of popular distrust lies with an inherent fault in Medicine itself. And more sad is the popular unwillingness to accept that fault as inevitable, at least for the present.

Medicine being that art that concerns itself more than anything else with the life and death of man, is expected to be the most perfect. Yet this is not true for many of the other human arts whose concern with human life and happiness is not as direct as that of Medicine are by far more perfect. Mankind, therefore, has placed in Medicine a wonderful belief that has continually been shattered. To the popular mind the least inefficiency in Medicine has assumed the proportions of a crime. Because of this shortcoming Mankind has come to regard Medicine as a sempiternally imperfect art, existing on a precarious right. But Mankind has not dared to do away with Medicine because of its supreme necessity, wherefore, that which had remained for it to do to show its distrust and disapproval of Medicine, has been by verbal thrusts at it, which are so abundantly found in the various literatures from the earliest times.

The Greeks' faith in Medicine was much the same as that of the peoples that came before them, and of those that came after them. There is a chill epigram from the Greek that runs: "Marcus, the physician, called yesterday on the marble Zeus; though marble, and though Zeus, his funeral is to-day." The Romans had among them many proverbs, born from unfortunate experience with Medicine, that showed their wariness of that ancient art. One Latin saying affirmed that there is "more danger from the physician than from the disease." Another said: "The surgeon buries his mistakes." The great Martial (Epigrams, Bk. 1, Ep. 47) declaimed:

"Diaule, the doctor, is a sexton made,
Though he is changed, he changeth not his trade."

In later times venomous expressions against the medical art seem to become more eloquent. In his "Le Médécin Malgré lui" (1666), Molière puts the following words into the mouth of his play physician, Sganarelle:

I think I had better stick to physic all my life. I find it is the best of trades; for whether we are right or wrong, we are paid equally well. We are never responsible for the better work, and we cut as we please in the stuff we work on. A shoemaker in making shoes can't spoil a scrap of leather without paying for it, but we can spoil a man without paying one farthing for the damage done. The blunders are not ours, and the fault is always that of the dead man. In short, the best part of the profession is, that there exists among the dead an honesty, a discretion that nothing can surpass; and never as yet has been known to complain of the doctor who killed him.

In another play "Le Malade Imaginaire" Molière ironically remarks through the lips of the soubrette Toinette:

This is pleasant! they are very impertinent to wish you, other gentlemen, to cure them! You do not attend them for that purpose; you are only there to receive your fees and to prescribe remedies; their affair to get well, if they can!

Molière did not confine his verbal thrusts at the medical profession to his plays and writings, but even in private life, at the least opportunity, was eager to air his views concerning the profession. He seems to have become quite famous for this, and one day when the king asked him how he got along with his physician, he replied: "Sire, we talk together; he prescribes remedies for me; I do not take them; and I get well."

Dumas was also deeply imbued with this spirit of medical distrust. It is said that one day he dined at the house of Dr. Gistel, a celebrity of Marseilles. After dinner the doctor brought his distinguished guest an autograph album, and asked him to add his name to it. "Certainly," said Dumas, and he wrote: "Since the famous Doctor Gistel began to practise here they have demolished the hospital—"

"Flattery!" cried the delighted doctor.

"And in its place made a cemetery," added the author.

Frederick the Great's distrust of Medicine remained with him to the end. When Dr. Zimmerman went from Hanover to attend him in his last illness the Emperor greeted him with the words: "You have, I presume, sir, helped many a man into the other world."

Several of the more well-known verbal launches found in poetry reflect, in a way, some of the mental characteristics of the authors. Quarles, in his "Hieroglyphics of the Life of Man," evidently felt peace in his soul when he said: "Physicians, of men, are the most happy; whatever good success soever they have, the world proclaimeth; and whatever faults they commit the earth covereth." Broome, in "Poverty and Poetry," felt his duty done when he wrote:

Though patients die, the doctor's paid,
Licens'd to kill, he gains a place
For what another mounts the gallows.

Dryden's accusation is found in the couplet:

The first physicians by debauch were made
Excess began, and sloth sustains the trade.

Addison, the brilliant essayist, wrote in the *Spectator*, a paragraph expressing his views of Medicine and physicians. The following is of special interest:

We may lay it down as a maxim that when a nation abounds in physicians it grows thin of people. . . . This body of men in our country may be described like the British army in Caesar's time. Some of them slay in chariots and some on foot. If the infantry do less execution than the charioteers it is because they cannot be carried so soon to all quarters of the town and dispatch so much business in so short a time.

In our own time attack on the profession still continues to come in forms of plays, novels, essays, and other forms of verbal expression. It will perhaps suffice to take George Bernard Shaw's drama, "The Doctor's Dilemma," as an example. The play is of extreme interest, and physicians should carefully note the points made, and of the truth in some of them, and fallaciousness in many of them. The preface to that jubilant satire itself is of great interest, and following excerpts are worthy of special attention:

It is not the fault of our doctors that the medical service of the community, as at present provided for, is a murderous absurdity. That any sane nation, having observed that you could provide for the supply of bread by giving the bakers a pecuniary interest in baking for you, should go on to give to a surgeon a pecuniary interest in cutting off your leg, is enough to make one despair of political humanity. But that is precisely what we have done. The more appalling the mutilation, the more the mutilator is paid. He who corrects the ingrowing toe-nail receives a few shillings; he who cuts your inside out receives hundreds of guineas, except when he does it to a poor person for practice.

Scandalized voices murmur that these operations are necessary. They may be. It may also be necessary to hang a man or pull down a house. But we take good care not to make the hangman and the housebreaker the judges of that. If we did, no man's neck would be safe and no man's house stable. But we do make the doctor the judge, and fine him anything from a sixpence to several hundred guineas if he decides in our favor. . . .

Again I hear the voices indignantly muttering old phrases about the high character of a noble profession and the honor and conscience of its members. I must reply that the medical profession has not a high character; it has an infamous character. I do not know a thoughtful and well-informed person who does not feel that the tragedy of illness at present is that it delivers you helplessly into the hands of a profession that you deeply mistrust, because it not only advocates and practises the most revolting cruelties in the pursuit of knowledge, and justifies them on grounds which would equally justify practising the same cruelties on yourself or your children . . . but when it has shocked the public, tries to reassure it with lies of breath-bereaving brazenness. That is the character the medical profession is got just now. It may be deserved or it may not; there it is at all events, and the doctors who have not realized this are living in a fool's paradise. As to the honor and conscience of doctors, they have as much as any other class of men, no more and no less. And what other men dare to pretend to be impartial where they have a strong pecuniary interest on one side. . . . To offer me a doctor as my judge, and then weigh his decision with a bribe of a large sum of money and a virtual guarantee that if he makes a mistake it can never be proved against him, is to go wildly beyond the ascertained strain which human nature will bear. It is simply unscientific to allege or believe that doctors do not under existing circumstances perform unnecessary operations and manufacture or prolong lucrative illnesses.

These accusations of Shaw's and of the other writers that were quoted before do not fundamentally express the reason for the popular distrust of Medicine. They have written simply what their prejudiced minds have sought to find and to magnify. The real cause of discontent with Medicine is its shortcoming in fulfilling a demand not yet possible.

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The Two Hundredth Anniversary of the Plague at Marseilles.—This epidemic occurred so recently that much may be learned of it through documentary evidence. It raged during 1720-1 and took 50,000 of the 90,000 inhabitants of the city. Today, after 200 years, there are still occasionally found small foci of the bubonic plague. Nearly 2,000 years ago the Greek city of Massillia, forerunner of the present metropolis, was ravaged more than once by a pestilence which may have been the same. There was a visitation in 1586-7 and another in 1628-30, but the 1720-1 epidemic was by far the worst on record. Since there were many ambulant cases the number who escaped attack altogether must have been small. The disease was said to have been brought to the city by the vessel named *Le Grand Saint-Antoine*. This assertion was, however, disproved by the report of Professor Deidier of the University of Montpellier, who had been sent by the King to make an investigation, by reports of Drs. Robert and Rimbaud of the city, and by other testimony. This vessel sailed from Port Saïd to Tripoli and at the latter port probably took on infected subjects or merchandise. This Tripoli was a town in Syria. The infected passengers who were booked for Cyprus were landed at that port, excepting one who died in transit. The sailors who threw overboard the cadaver soon came down with the disease. Other sailors and the ship's doctor were then attacked, and the Captain put in at Leghorn. Here the port surgeons pronounced the ship infected with plague. The ship proceeded to Marseilles, where the captain showed his papers and was promptly quarantined. He therefore escaped all responsibility for the Marseilles epidemic. Moreover his ship arrived after the outbreak of the disease, a number of prominent residents having already perished from it. Deaths continued to occur on the plague ship. The true mode of introduction was held to be—as so often happens—the work of smugglers, who cannot be reached by quarantine. Some dry goods were bought by a patron of smugglers and his 15 year old boy was the first known victim. He first came down with buboes and carbuncles. There was next a mass outbreak in the smugglers' quarters.

In commenting on the nature of the disease experts attributed it to the so-called pestilential germs of Kircher who predicated the existence of infinitely small living organisms. The aromatic vinegar recommended by the "city fathers" as a prophylactic was evidently of some value as a pulicide, for it enabled the thieves to rob right and left with impunity. Letters were disinfected by a special device and surgeons opened buboes with special long handled instruments, some of which are preserved in the local museum.—*Gazette des Hôpitaux*, xciv, 67.

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Original Articles.

SYPHILIS AND HIGH BLOOD PRESSURE.

BY BURTON PETER THOM, M.D.,

NEW YORK.

VISITING SYPHILOLOGIST TO THE HOSPITALS OF THE DEPARTMENT OF CORRECTION, BLACKWELLS ISLAND.

THE clinical aphorism that "a man is as old as his arteries," unlike most dogmatic epigrams, is true without exception. So constant is this fact that it may be raised to the dignity of a physiologic law that can be accepted without question. The relation, however, which many suppose to exist between arteriosclerosis or "hardening" of the arteries and high blood pressure, is not so intimate as to cause and effect as was formerly believed. We now know that a considerable degree of high blood pressure can exist for an appreciable length of time without causing any lasting thickening of the arterial walls. Also, we know that a considerable degree of thickening of the arterial walls can exist without a corresponding increase in the pressure of the blood flow. These conditions, however, I may say in passing are more or less anomalous and cannot continue for an extended period of time without ultimately giving rise to changes that are permanent. The study presented here, however, concerns arteriosclerosis as the probable cause of the examples given of high blood pressure, which I believe to be due to syphilis. From the evidence of the data collated and submitted herewith I am convinced that no other conclusion can be reached.

Before going further it will be well, perhaps, in order to arrive at a better understanding of the pathogenesis of arteriosclerosis, to discuss briefly the histologic anatomy of the arterial system as well as the biologic kinetics which control the pressure of the blood. In this last a number of new facts have come to the fore which have materially altered our former conceptions.

The arteries, except in their very smallest terminals, are made up of three coats or tunics, as they are called, the *tunica adventitia* or external coat, the *tunica media* or middle coat, and the *tunica intima* or inner coat. The outer coat is composed of connective tissue through which pass to the intima the blood vessels and nerves of nutrition and control. There are also a few fibrils of elastic tissue running through the substance of the outer coat, but the elastic tissue predominates in the middle coat, which, with smooth muscle fibers and a small amount of connective tissue comprise the elements of the middle coat. In the middle coat the elastic fibers are arranged in concentric layers which are held together by oblique fibrils of elastic tissue — the radial connecting fibrils of Dürck. The external layers of the elastic tissue of the middle coat are less condensed than the inner layers. The inner layers are fenestrated for the passage of the radial connecting fibers and the vasa vasorum. The internal coat is composed of a layer of flat endothelial cells. In early life this endothelial layer rests directly upon the middle or elastic layer, but as life advances this inner layer gradually loses its simplicity of detail and becomes more complex in that muscle and elastic fibers reinforce as it were the endothelial layer. In old age fibrous transformation of the muscle and elastic fibers of the two inner coats occurs which gives rise to the rigidity of the arterial tubes, which may be regarded as a natural retrogressive change concomitant with senility. However, when due to advanced years this thickening of the intimal coat is never as pronounced as the thickening of the medial and adventitial coats. For it is the undue and premature thickening of the intima which gives rise to the syndrome of high blood pressure.

The fibrous, and at times calcareous, transformation of the arterial walls due to the aging of the organism differs but slightly if at all from the sclerosis due to pathological causes. The sclerosis that is senile and the sclerosis that is pathological are both of slow development and it would not be outside the bounds of reason, in the light of knowledge now at hand, to say that they are essentially due to the same cause, that is, to irritation, continued over a longer period when senile and a shorter period when pathologic. This irritation is caused by substances in the blood stream which are undoubtedly various and at present not possible to define with anything like absolute certainty. Our increased knowledge of the physiology and pathology of the endocrine glands leads us to believe that these glands when perverted in their function are remote if not direct causes in many instances of arteriosclerosis and high blood pressure. In one disease, however—syphilis, and also in its congener yaws, the thickening of the arterial walls is due to an irritation that is peripheral and approaching from without — the *Treponema pallidum* is only rarely found in the blood stream even in the most active phase of the disease—the thickening of the intima which is characteristic of syphilitic arteriosclerosis is due to the irritation in part to the approach of the infecting organisms through the minute lymphatics supplying the vessels and contiguous to and continuous with them.

Ophuls is of the opinion that arteriosclerosis is due to a chronic intoxication, and the opinion of Barker is the same. Ophuls also states that "the

anatomic lesions seem to develop very slowly and progressively, even after the original infection is extinct." One of the facts that the more recent discoveries in the mechanism of high blood pressure have brought to light is that it is not dependent almost entirely, as was once supposed, on sclerotic contraction of the kidneys. As Barker in his very able monograph says: "it could not possibly be due to the increase of the arteriolar barrier in the kidney alone. It seems to be due rather to a narrowing of the lumina of the arterioles all over the body, to a general arteriolar constriction, partly of vasotonic origin, partly (at any rate in the later stages) of sclerotic origin." Barker further asks the question, "what causes this sclerosis, which begins as a functional narrowing due to the irritation already mentioned of the muscle and elastic fibers of the inner coats, the intima and the media. The question can be answered in so far as syphilis is concerned by assuming that as for the irritation in the blood stream which determines the initial hypertonus of the arterial walls, the biologic cause is to be found in the adrenals and the mechanical cause in the cellular infiltration and consequent transformation not only of these superadded elements but of the muscle and elastic fibers which are intrinsic to the inner and middle coats.

The researches of Oliver and Schäfer in 1894 led them to believe that the secretion of the adrenal glands sustained the tone of the vascular system. The later researches of Gley and Quinquaud are against this theory, but my opinion is that the conclusions of the earlier researchers are in the main correct. The explanation of the phenomena observed by Oliver and Schäfer is, I think, best given by Sajous that adrenalin in the blood stream enables the hemoglobin to take up oxygen in the pulmonary air cells, thus allowing it to be converted into oxyhemoglobin. The variations of the blood pressure are, in consequence of this, due to the presence of adrenalin in excess or deficiency as the increased or diminished oxygenation and metabolism acts on the walls of the arteries, causing a hyper- or hypotonus as the case may be. When this hypertonus is continued for a considerable length of time—when it becomes chronic as it were—the muscle and elastic fibers of the inner coats become fixed and set and the condition becomes permanent. With the increased tonicity the artery naturally becomes harder, and this hardness can often be appreciated by the sense of touch. This functional arteriosclerosis, as it is aptly designated by Pal, in time means an anatomically altered artery—an artery in which the walls have undergone degenerative changes as have been shown by Aschoff, Marchand, and Thoma. This contraction is seen throughout the entire vascular system as Volhard has shown.

The theory formerly held, and still held I may say by those who have not kept abreast with modern research, that increased blood pressure is primarily due to a sclerosis of the kidneys following some lesion of the same, is no longer tenable. For, as Kylin very cogently states, if a lesion of the kidneys is the original and underlying cause a symptomatic expression of a renal lesion must antedate the high blood pressure. Clinicians and pathologists both know that this does not always occur—in fact, it is rather infrequently noted. If injuries of the kidneys were the cause of high blood pressure it would necessarily follow that the greater the renal injury the greater would be the increase in the blood pressure. This we also know not to be. Mechanical factors can and do undoubtedly enter into the production of high blood pressure and arteriosclerosis, as the classic experiment of Ljungdahl with the pulmonary artery has shown; but mechanical factors cannot influence the entire vascular system except that they are inaugurated and kept at work as it were by factors which are strictly biologic.

That syphilis attacks the blood vessels has been known since the days of Severinus, but it was not until the time of Virchow that arterial lesions due to syphilis were systematically studied. What was formerly suspected or held as a hazy belief we now know, thanks to the researches of Gull and Sutton, Huebner, and many others since their day, to be a very common occurrence; in fact we know that the *Treponema pallidum* has a very decided predilection to lodge in the walls of the arteries and induce pathologic changes therein. The frequency of these changes and their early incidence is what I hope to prove in this thesis.

It has long been known that infection with the *Treponema pallidum* is local for only a very short time; that is, the disease becomes constitutional long before its first local manifestation—the chancre—appears. This has been proven conclusively by Metchnikoff and Roux in their experiments with prophylactic ointments, and later in the more carefully controlled and satisfying experiments of Brown and Pearce. These last two workers have shown beyond all question of a doubt how soon and how completely the infecting agents permeate the organism. Widespread and disseminated through every organ and tissue of the body almost from the beginning, syphilis undoubtedly quickly inaugurates the changes in the adrenals and the walls of the arteries which in time by slow accretion, as it were, leads to the generalized arteriosclerosis and high blood pressure which this condition connotes.

Syphilis attacks the three coats of the arteries—the adventitia, the media, and the intima. It also attacks and frequently obliterates the vasa vasorum—the vessels of the vessels which nourish all those sufficiently large to require a nutrient supply in excess of that supplied by the generalized nutrient body juices. The *Treponemata* advance by way of the vasa vasorum and the irritation they excite causes a proliferation—a purely defensive process by the way—of plasma cells and lymphoid cells and multinucleated giant cells. In not a few instances this cellular proliferation is more or less circumscribed and then projects either outward through the adventitia or inward through the intima into the caliber of the vessel. These circumscribed proliferations very frequently undergo central necrosis and in their architecture correspond to true gummata—for such they really are. Such neoplasms as these are found only in the larger vessels, and in those of smaller caliber these aggregations are not always so characteristic. Minute gummata frequently occur, however, and project into the lumen of the smaller arteries—especially is this so of the cerebral arteries. An interesting

and perhaps significant fact has recently been brought to light by Kolmer and Lucke in their study on the histologic changes produced experimentally in rabbits by mercurial compounds. In the changes occurring in the brain and meninges these workers observed: "These tissues showed an interesting and unexpected perivascular round-cell infiltration; curiously this change is regarded as more or less constant in syphilitic infection of these tissues, and our findings quite naturally raise the question of the significance of perivascular round-cell infiltration in the brain of syphilitic subjects who have taken mercury during life."

Instead of being circumscribed and thus partaking of the character of a neoplasm the cellular infiltration is frequently diffused throughout the media and intima and, as in all syphilitic inflammation, this cellular infiltration later undergoes fibrous transformation which naturally distorts and contracts the artery. In the smallest arteries, in which the outer coats are much more simplified than those of larger size, the intima bears the brunt of the attack and in consequence of the cellular proliferation of this inner coat the lumen of these small tubes is not infrequently entirely obliterated. This is obliterative endarteritis and is arteriosclerosis carried to its ultimate conclusion. It is this arteritis obliterans whcih is responsible for many of the phenomena of cerebral syphilis and also of the syndrome known as intermittent claudication.

It is well known to syphilologists and clinicians generally that hemiplegia occurring in patients under forty years of age is in the majority of instances of syphilitic origin. It is not perhaps so well known that the hemiplegia occurring late in life, after fifty years of age, is very frequently preceded by a remote syphilis. Vedsmand, in an analysis of eighty-one patients with hemiplegia which had occurred after the sixtieth year, obtained a history of previous syphilis in 15 per cent. He further quotes from a monograph of H. A. Thomas in which 740 cases of hemiplegia are recorded. He found the observations of Thomas in accord with his and concludes therefore that tardy hemiplegia in old syphilitics is more common than is usually supposed. I am in full accord with the findings of Vedsmand and Thomas. It is but added proof of the intimate relationship existing between syphilis as a causative factor in high blood pressure and arteriosclerosis.

As to the pathological changes in the adrenals due to syphilis, which I believe to be a most potent factor in the production of the high blood pressure so frequently encountered in that disease, I am unable to offer any definite data except that the *Treponema pallidum* has been found at autopsy in the gland and as long ago as the days of Virchow and Lancereaux pathological changes here were observed in those dying of visceral syphilis. Further confirmation as to the influence exerted by the gland in producing arteriosclerosis and high blood pressure is to be found in the condition known as *progeria* or premature senility which is invariably associated with atrophy of the gland. It is needless for me to call the reader's attention to the fact that senility and arteriosclerosis are synonymous and synchronous. Animals in which the adrenals have been extirpated die within forty-eight hours with symptoms of profound depression, low temperature, and low blood pressure. Stewart has shown that death in such animals was considerably postponed if pregnant or lactating, and he assumed that this might be due to the excess of cholesterin in their blood as this substance is increased in amount in pregnancy and lactation. He also observed that injection of cholesterin before and after operation for the removal of the glands prolonged the life of the animals. Recently, Henes has shown that the presence of cholesterin in the blood is an important factor in determining the presence or absence of the Wassermann reaction in any given serum. In this connection I need only mention the increased sensitiveness of the test when cholesterinized antigen is used. From what he has observed, Henes has—and rightly in my opinion—assumed that syphilis must cause an excess of this substance in the blood, which would further show that the disease must in some way act upon the adrenals. Glands with an anatomic structure like the adrenals offer an excellent nidas for the *Treponema pallidum*, and in the early and widespread dissemination of these organisms which occurs in syphilis there is no reason to doubt but that they are frequently affected to the extent of producing more or less permanent pathological changes which react upon the body metabolism by the consequent changes induced thereby in their secretions.

I shall now present the following protocol of the blood pressure measurements of fifty syphilitics from my service in the municipal prisons of the city of New York. Of these, twenty-five are women and twenty-five are men. The Wassermann reaction registered four plus in all of them. In none of them were there any noticeable cardiac or renal lesions as evidenced by stethoscopic examination or uranalysis. All of them were selected at random; no attempt being made to choose cases that would favor the contention herein expressed. It can be truly said that these patients represent an absolutely correct cross section of the syphilitic census of the two prisons and, I might add in passing, of the largest city in the world, the prisoners being drawn from all sections of the country and of all degrees of social status.

FEMALES.—E. S. age 32, white, married, one child, living, asymptomatic, date of infection unknown; S. 136, D. 64, Average 72.

L. T. age 27, white, married, no children, no miscarriages, asymptomatic, date of infection unknown; S. 132, D. 82, Average 50.

L. D. age 33, white, married, one child, living, one miscarriage, asymptomatic, date of infection unknown; S. 128, D. 68, Average 60.

M. C. age 34, colored, married, no children, no miscarriages, asymptomatic, date of infection unknown; S. 130, D. 68, Average 62.

B. B. age 36, colored, married, one child, living, asymptomatic, infected 4 years ago; S. 118, D. 70, Average 48.

T. M. age 31, white, married, one child, dead, no miscarriages, asymptomatic, infected 5 years ago; S. 118, D. 76, Average 42.

A. H. age 39, white, married, no children, two miscarriages, asymptomatic, date of infection unknown; S. 138, D. 82, Average 56.

B. A. age 38, colored, single, no children, no miscarriages, asymptomatic, date of infection unknown; S. 142, D. 82, Average 60.

J. H. age 29, colored, married, no children, two miscarriages, asymptomatic, date of infection unknown; S. 114, D. 58, Average 56.

A. L. age 24, white, married, no children, one miscarriage, one stillbirth, asymptomatic, date of infection unknown; S. 120, D. 70, Average 50.

F. B. age 27, white, single, no children, no miscarriages, asymptomatic, date of infection unknown; S. 140, D. 66, Average 74.

M. K. age 27, white, single, no children, no miscarriages, asymptomatic, date of infection unknown; S. 120, D. 64, Average 56.

S. D. age 33, white, married, no children, no miscarriages, asymptomatic, date of infection unknown; S. 132, D. 60, Average 72.

G. N. age 32, colored, married, no children, no miscarriage, asymptomatic, infected a year and a half ago; S. 118, D. 82, Average 36.

A. L. age 24, white, single, two children, one living, one dead, no miscarriages, asymptomatic, date of infection unknown; S. 110, D. 74, Average 36.

S. R. age 33, white, married, no children, one miscarriage, asymptomatic, date of infection unknown; S. 126, D. 64, Average 62.

G. N. age 32, colored, married, no children, one miscarriages, asymptomatic, date of infection unknown; S. 120, D. 80, Average 40.

R. R. age 23, white, single, no children, no miscarriages, asymptomatic, date of infection unknown, S. 114, D. 50, Average 64.

E. I. age 21, white, married, no children, no miscarriages, asymptomatic, date of infection unknown; S. 108, D. 68, Average 40.

T. M. age 32, white, married, two children, living, three miscarriages, asymptomatic, date of infection unknown; S. 124, D. 70, Average 54.

E. B. age 33, white, single, no children, no miscarriages, asymptomatic, date of infection unknown; S. 138, D. 88, Average 50.

E. R. age 32, white, single, no children, no miscarriages, asymptomatic, date of infection unknown; S. 116, D. 78, Average 38.

M. McC. age 30, white, single, no children, two miscarriages, asymptomatic, date of infection unknown; S. 136, D. 90, Average 46.

C. L. age 39, colored, single, no children, no miscarriages, asymptomatic, date of infection unknown; S. 122, D. 76, Average 46.

C. S. age 31, white, single, no children, no miscarriages, asymptomatic, date of infection unknown; S. 122, D. 66, Average 56.

MALES.—J. C. age 33, white, single, infected eight years ago, ulcerated gumma of the right thigh; S. 140, D. 84, Average 56.

D. E. age 28, white, single, asymptomatic, date of infection unknown; S. 118, D. 68, Average 50.

P. B. age 35, white, single, infected ten years ago, gummatous ulceration three years ago for which he was treated with salvarsan and mercury; S. 134, D. 68, Average 66.

M. P. age 33, white, single, phagedenic chancre now present on the glans; S. 148, D. 82, Average 66.

G. G. age 38, white, single, chancre four years ago, no further symptoms and is now asymptomatic; S. 142, D. 78, Average 64.

G. B. age 32, white, single, infected eight years ago, tubercular syphilides now present on the face and arms; S. 140, D. 60, Average 80.

N. N. age 35, Chinese, single, chancre three years ago, for which he was treated with salvarsan and mercury, at present asymptomatic; S. 118, D. 68, Average 50.

P. D. age 19, white, single, infected one year ago, no secondaries, asymptomatic; S. 130, D. 74, Average 56.

H. H. age 22, colored, single, phagedenic chancre eight months ago, mucous patches in the mouth and on the scrotum, condylomata lata about the anus, scaling papules scattered over the body; S. 134, D. 80, Average 54.

C. L. age 31, colored, single, infected two years ago, no secondaries, at present asymptomatic; S. 130, D. 72, Average 58.

J. R. age 20, colored, single, infection denied, asymptomatic; no stigmata of congenital disease; S. 124, D. 72, Average 52.

L. R. age 32, white, single, chancre six years ago, asymptomatic since then; S. 154, D. 72, Average 82.

F. D. age 20, white, single, chancre eighteen months ago, no secondaries, complains of cephalalgia; S. 118, D. 68, Average 50.

C. H. M. age 28, white, single, date of infection unknown, asymptomatic, no stigmata of congenital disease; S. 124, D. 70, Average 54.

M. M. age 21, white, single, date of infection unknown, asymptomatic, no stigmata of congenital disease; S. 118, D. 68, Average 50.

J. S. age 28, white, married, infected three years ago, S. 140, D. 78, Average 62.

S. N. age 39, white, single, date of infection unknown, pupils unequal but react sluggishly to light and accommodation, patella and achilles reflexes absent; S. 148, D. 72, Average 76.

H. A. age 26, white, single, chancre three years ago, no subsequent symptoms, congenital stigmata present, undoubtedly a case of binary syphilis; S. 136, D. 74, Average 62.

N. W. age 28, white, single, chancre ten years ago, at present asymptomatic; S. 140, D. 80, Average 60.

A. I. age 31, white, single, chancre three years ago, light secondaries, at present asymptomatic; S. 140, D. 70, Average 70.

M. J. age 35, Chinese, single, chancre two years ago, at present asymptomatic; S. 120, D. 60, Average 60.

P. F. age 29, white, single, chancre nine months ago, no secondaries, at present asymptomatic; S. 138, D. 58, Average 80.

J. F. age 21, colored, single, chancre two months ago, papular eruption present; S. 128, D. 62, Average 66.

W. B. age 27, white, single, chancre ten years ago, gummatous ulcerations now present on the thighs; S. 132, D. 58, Average 74.

A. L. age 45, white, single, chancre ten years ago, at present asymptomatic; S. 148, D. 72, Average 76.

Before analyzing the blood pressure measurements herein given I desire to call the reader's attention to certan facts contained in this protocol which I believe are worthy of interest. It will be noted that of the twenty-five women only two, or 8 per cent., can recall the date of infection. This is in accord with the experience of most syphilologists and clinicians generally. The fact that in women the chancre is rarely indurated to the same extent as it is in men, and also owing to the anatomic conformation of the female genitals, is why, perhaps, the primary lesion of syphilis so often escapes their notice. It will also be noticed that all of these women are asymptomatic, at least in so far as gross cutaneous manifestations are concerned, and I might add further that in nearly every instance they were not aware that they were syphilitic until apprised of the result of the Wassermann test. This asymptomatic syphilis is also the form that is more generally encountered in women at present than it evidently was formerly. It also in a measure at least, helps to verify the belief held by many syphilologists—myself included—that syphilis is milder in women than it is in men. Whether this is due to increased phagocytosis in females as compared with males, as some believe, or because of increased iodine secretion owing to greater activity of the thyroid in females as compared to males, I shall not attempt to answer.

Of the twenty-five men, only five, or 20 per cent., were unable to recall the date of infection—the remainder all had a very distinct recollection of the appearance of the primary lesion. This is in marked contrast to the experience of the women in whom only two, or 8 per cent., could recall the appearance of the chancre. It will also be noted that of the men, six, or 24 per cent., showed tertiary lesions as compared to none shown by the women. This percentage of cutaneous tertiarism is approximately in accord with the statistics of Fournier

and others as to the occurrence of these lesions. It is also of interest to note that while none of the women showed any of the gross tertiary manifestations of the disease as compared with 24 per cent. of the men, none of the women had received previous treatment as compared to 80 per cent of the men. That there is a reason for these marked differences in the evolution of the disease in the two sexes I am convinced—a difference that many others besides myself have noted; future research directed along lines to discover this difference will, I believe, be rewarded with facts not hitherto suspected pertaining to the pathogenesis of the disease, especially as it affects the endocrines.

None of the women examined had reached an age when an increased pressure would be noticeable—the youngest being twenty-one years and the oldest thirty-nine years. However, if we consider a pressure of 110 systolic as normal for a woman of twenty years, it will be observed that thirteen, or 52 per cent., are above the normal; and if we consider a diastolic pressure not exceeding fifty as normal, the same number and percentage register above the normal. It will thus be seen that more than half of these asymptomatic syphilitic females showed an increased blood pressure.

Of the men examined the oldest was forty-five and the youngest nineteen. It will thus be seen that the age average of the two sexes shows very little difference. If we consider a pressure of 120 systolic as normal for a man of twenty years it will be observed that sixteen, or 64 per cent., are above the normal; and if we consider a diastolic pressure not exceeding sixty as normal, the same number and percentage register above the normal. It will thus be seen that high blood pressure is present in the men in an excess of 12 per cent. over the women. The number of women and the number of men showing an increased blood pressure total twenty-nine, or 58 per cent. Therefore it can be assumed that approximately one-half or more of all syphilitics irrespective of sex or lack of objective symptoms show an increased blood pressure. This pressure may not necessarily give rise to subjective symptoms; in fact none of the patients examined complained of any of the symptoms pertaining thereto. Yet, nevertheless, if we accept the axiom that the body ages with the arteries these patients are much further advanced on the path of life than they otherwise would be if they had not contracted the disease. Such being the case, they are also more vulnerable to attack from other life-destroying diseases. Although the eminent pathologist, Douglas Symmers, believes that syphilis is a disease of diminishing severity, and while in a measure I believe this to be true in so far as cutaneous lesions are concerned, yet I believe it to be more accurate to say that it is a disease of changing severity in that its tendency now is to attack the deeper structures which are even more vital than those on the superficies of the body.

The syphilitic factor in cardiovascular disease has not, in my opinion, been sufficiently recognized. Not excepting other chronic infections and toxemias, it is, I believe, the most frequent cause of the syndrome of high blood pressure and all that this condition ultimately connotes.

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FAULTY ATTITUDES IN CHILDREN.

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FAULTY attitude in children is one of the common conditions in which the old adage, "a little prevention is worth all the cure?" is readily applicable. Round shoulders or functional types of scoliosis when seen early can very easily be overcome. If permitted to persist structural changes occur in the bones, muscles, and ligaments, resulting in fixed deformities. Attempts to cure the latter type of cases have proven futile.

Incorrect posture is very rare in children who are enjoying good physical condition. The children affected usually lack general vigor and muscular development. It is in the latter class of children that especial precautions should be taken to prevent round shoulders, scoliosis, kyphosis and lordosis.

The vertebral column of the fetus generally forms one single curvature, the convexity of which is directed backward. During the first few months of its life after birth, the child retains this position. If the infant is retained in a recumbent position or on a firm bed a slight flattening of the kyphosis may occur. A soft mattress which yields to the weight of the infant will permit an increase in the kyphosis. An important change occurs in the vertebral column when a three or four month child begins to lift its head. The dorsolumbar region of the spine retains the original kyphosis, but the cervical region now changes from the kyphosis into the opposite, namely, a lordosis with the convexity forward. A second change in the shape of the spine occurs at the end of the first year when the child begins to stand on its feet and attempts to walk. The muscles of the back which hitherto have been used very little are now brought into action. These muscles arise from the sacrum and are inserted into the lower portion of the dorsal region of the spine. In contracting they force the kyphosis, which formerly was formed by the lumbar region of the spine, gradually forward and finally transform it into a lordosis. As a result of these changes the vertebral column which originally was a total kyphosis, now presents an anterior lordotic curvature in the cervicodorsal region, the original kyphosis in the dorsal region, and a lordosis in the lumbar region. Thus the fundamental S shape is attained.

A continuous and harmonious cooperation of numerous muscles is essential to retain the spine in its normal position. The posterior muscles located on both sides of the spine tend to increase the lordosis, while the anteriorly located muscles tend to augment the kyphosis. The normal posture is dependent not alone on the form of the spine, but is influenced also by the position of the pelvis. The connection of the pelvis with the spine by means of the sacroiliac articulation is rather rigid. For this reason the position of the spine is intimately associated with that of the pelvis.

The pelvic motions are based on an axis connecting both hips. In the recumbent position the pelvis is at rest, the thighs alone being able to perform

certain movements which are called flexion and extension. These movements result from the action of the flexor and extensor muscles of the hip. In the erect posture, with the legs fixed, pelvic movements are performed by similar muscular action. When the flexor muscles become active the anterior part of the pelvis is tilted downwards and the plane through the superior pelvic entrance becomes almost vertical. This pelvic position is called increased inclination of the pelvis. The reverse occurs when the extensor muscles of the hip are brought into action. The posterior part of the pelvis is then tilted downwards and the superior pelvic strait appears horizontal. This attitude is called decreased inclination of the pelvis. It is evident that the attitude of the pelvis exerts a marked influence on the carriage of the vertebral column as well as on the position of the trunk. In case of an inclined pelvis, i. e., when the superior pelvic strait is more vertical, the trunk would fall forward were it not for the action of the lumbar region of the spine, which owing to a marked lordosis, bends the spine backwards. Decreased inclination of the pelvis has the opposite effect. In this case the falling backward of the trunk is prevented by a marked kyphotic curvature of the lumbar region forcing the upper part of the spine forwards. In the normal posture, a line connecting the promontory and upper border of the symphysis forms an angle of fifty degrees with a horizontal plane.

To obtain prompt information as to the normal appearance of the spine and pelvis in a living subject, a vertical line should be drawn from the cervical region to the lowest point of the sacrum. Such a line in a normal individual must either touch the dorsal curvature or pass very near it. In addition to the shape of the spine and the inclination of the pelvis the other components which contribute to a normal attitude are of minor importance. Finally, in order to maintain a normal posture, it is necessary to hold the shoulders backward in a position midway between high and low elevation.

Kyphosis—The formation of kyphosis of the spine is explained by the assumption of an habitual attitude characterized by an increased posterior curvature of the spine. It may involve the entire spine from the first cervical vertebra to the sacrum. Such curvature of the spine is called total kyphosis. It occurs very rarely and is usually congenital. It is probably the result of deficient amniotic fluid in intrauterine life where the kyphotic position was retained for a long period, finally becoming rigid in this attitude. The deformities of the spine which present pathological kyphosis in the dorsolumbar region are more frequent, while the cervical part presents the physiological lordosis. This form of kyphosis is most frequently observed during the first and second year in rachitic children.

Rachitic Kyphosis—A characteristic symptom of this form of round back is the marked posterior projection of the lumbar portion of the spine. Assuming the sitting posture in bed at too early a period is the main cause for this marked kyphosis. Extension of the legs at the knee joint and the rectangular flexion in the hip force the muscles to contract and to rotate the pelvis backward in such a way as to decrease the inclination of the sacrum and to alter the forward position into a more posterior direction. The lumbar region following the excursion of the sacrum necessarily forms an increased kyphosis. Carrying children on the arm aggravates the disposition to kyphosis. Finally, faulty arrangement of the bed, too many pillows and a soft mattress instead of a hard even one may result in an increased kyphosis of the soft rachitic vertebral column. Rachitic kyphosis becomes especially damaging when children fail to stand and walk at the proper time. At that time the factor is suppressed, which, as described above, has the greatest influence on the development of the physiological lumbar lordosis. This results in rigidity of the lumbar region of the spine in the form of an habitual kyphotic curvature. Very little attention is given to rachitic kyphosis. Although the marked degree of kyphosis which is found in children during the first and second years disappears later to a great extent, still much trouble has often resulted from kyphoses of rachitic origin. These children occasionally develop scoliosis or round shoulders in their second decade.

Diagnosis—Inclination to kyphotic posture is best observed in infants while in the sitting position. The spinal column of a normal child of six months when seated with the hip and knee joints in rectangular flexion, assumes the following position: lordosis in the cervical region, kyphosis in the dorsal region and slight lordosis in the lumbar region. Any marked posterior projection of the lumbar portion of the spine must be looked upon as an inclination to kyphosis. An incipient rigidity can be more readily detected when the child lies upon its abdomen. Upon grasping the child by the legs and raising it a trifle the spinal column if normal assumes the most marked lordotic shape possible. The rigid rechitic kyphosis, however, presents a posterior convex curvature in the dorsolumbar region of the spine.

Treatment—In the first place, treatment should aim at remedying the general rachitic affection. Rachitic children should sleep upon an even hard mattress, should not be carried on one arm, and should be prohibited from sitting in their carriages with the knees extended. Where kyphosis is developing a pillow or cushion should be placed over the lumbar region of the spine so as to induce a lordosis. When this is of no avail a Bradford frame or a plaster bed can be utilized with excellent results.

Round Shoulders—In older children, especially during the school period, a type of kyphosis makes its appearance which, although embracing the dorsal and lumbar portions of the spine as in rachitic kyphosis, exhibits the most marked projections a little higher up, usually in the center of the dorsal portion of the spine and not in the lumbar portion. This condition is also known as stoop or slant shoulders, round back, round hollow back and bowed back. Most children whose bad carriage elicits steady complaints from parents exhibit this postural anomaly. The causes of this deformity may mainly be traced back to the fact that children hold and fix their trunks with as little muscular action as possible. To hold the spine in such a position as to conform with the physiological

curvature, a continuous action of the erectores spinæ as well as the flexor and extensor muscles of the hip, is essential. However, the children seek to fix the spine by positive contraction of muscles and checking of ligaments. This is done by the dorsal and lumbar portions of the spine assuming a totally kyphotic curvature. The ligaments inserted along the posterior aspect of the spine, the ribs and the spinal processes, act in opposition, while the vertebral bodies are pressed together at the front of the spine, thus producing a rigidity of the otherwise flexible structure.

Aside from these vertebral changes, other variations of normal posture are often found in these cases and may be briefly mentioned. In almost all dorsolumbar kyphoses, a markedly decreased inclination of the pelvis is noticeable. This attitude, as in kyphotic fixation of the spine, is likewise caused by passive contraction of ligaments, which act as a substitute for the tiring muscles.

Children with weak or inactive muscles and round backs avoid all straining motions of the flexor and extensor muscles of the hip, which are required in maintaining the normal posture of the pelvis. Instead they persist in lowering the posterior part of the pelvis until the muscles of the hip which are inserted along the anterior border of the pelvis (tenso fasciæ femoris, sartorious and iliopsoas) become quite tense as well as the anterior ligaments of the capsule of the hip joint. Finally, these children with round backs allow their shoulders to drop forward and downward in order to eliminate as much as possible the irksome activity of the shoulder muscles. In general the attitude is familiar, the head is carried forward and somewhat flexed, the physiological curve in the dorsal region is increased and the dorsal region is prominent behind, in which backward curve the lumbar region may share, or there may also be an increased lumbar curve forward. The shoulders droop and the chest is narrow and flat, while the scapulæ are prominent on their posterior borders and the inferior angles may project markedly, forming the so-called winged scapulæ. Weak feet are frequently present. As a rule the general vigor and muscular development are below the average in children who have round shoulders. They are clumsy in their movements and walk heavily. In some cases the deformity can be corrected by the patient or by gentle pressure with the hands, but in most of the cases the deformity cannot be wholly corrected by gentle passive force, as the persistent maintenance of malposition has led to adaptive shortening of the soft parts concerned.

The affection is not wholly one of the spine, but implies a disturbance of relations from the feet upwards, because an increase in the backward curve of the spine implies a forward curve or forward displacement somewhere else to balance it. Hence round shoulders is not to be considered as an affair wholly concerning the dorsal spine or shoulders.

Etiology—In general the causes of round shoulders are: (a) Conditions producing muscular weakness. Chief among these conditions are rapid growth, overwork and impure air at school, improper school furniture, acute illness and bad hygiene at home. (b) Conditions producing a flexed position of the spine for prolonged periods. School furniture which fails to support the back, errors in vision which necessitate stooping over the books in reading, careless attitudes of reading and sitting permitted at home, are chief among these conditions. The child with normal eyes should not have to hold the book nearer than twelve to fourteen inches. (c) Overweighting of the shoulders by improperly arranged clothing. The customary method of supporting a child's clothes consist in the use of a waist, loose around the abdomen, to which drawers, skirts or trousers are buttoned. To this waist are also attached side elastic stocking supporters, which are kept tight to prevent the stockings from wrinkling. This waist is supported above by two shoulder straps passing over the shoulders near their tips. The entire weight of the clothes and the added pull of the stout elastics is thus transferred to the child's movable shoulders, of all the parts of the body the least suited to hold against a steady downward pull. This pull is transferred to the spine by the muscles clavicles, and thorax tending to produce flexion. The remedy of this condition consists in supporting as much as possible the clothing from a belt, using round garters, or in cases with markedly prominent abdomen the use of a corset waist. (d) Rickets is one of the important causes of faulty attitudes in children.

Pathology—The pathological changes in round backs of school children consist principally in an overextension of the ligaments and muscles situated on the posterior aspect. In case of a persistent kyphotic posture the soft parts become shortened in front and the intercartilaginous surfaces, as well as the osseous vertebræ undergo changes to the extent that the posterior parts grow thicker and the anterior parts become thinner, resulting finally in a decreased flexibility of the spine and producing a rigidity.

Prognosis—The attitude of round shoulders is not to be regarded as on which will be outgrown. It requires treatment and with proper attention and hygiene the prognosis for recovery in young children is good. In older children and adolescents improvement and perhaps cure are to be obtained. Even in young adults an improved position of the shoulders and a better expansion of the chest are to be secured with adequate treatment. If the attitude of round shoulders is permitted to persist into adult life there are certain respects in which it may affect unfavorably the health of the individual. The flat chest and diminished chest expansion mean impaired respiratory capacity and diminished room for the heart and the large abdomen favors ptosis of the abdominal viscera. Moreover, the bowed spine is generally a weak spine and such patients are liable to static backache.

Treatment—The treatment of this condition resolves itself into one of exercises which aim to methodically strengthen the muscles of the shoulders, back and pelvis. The following simple exercises have proven helpful. (1) The patient assumes an erect position with the hands clasped together at the back. The body is bent forward, then the arms are projected backwards with extended elbows and the shoulders are drawn together. Finally, with the shoulders and arms held in the above position, the trunk is gradually straightened, forcing the spine into a lordotic curve. (2) The

patient stands erect holding the clasped hands behind the head, elbows flexed, during a forced expiration the arms are brought forward until they are parallel to each other. Then while the arms are carried as far backward as possible, a deep inspiration is taken and at the same time the patient raises its body by standing on its toes. (3) Walking in the fresh air is very beneficial. Where there is rigidity, hanging from rings or reclining over a cross bar may be tried. These active and passive exercises must be persisted in for one half to one hour daily. In children with round shoulders especial attention should be given to the construction of seats. If the seat is without a back children will surely assume a kyphotic posture. Finally, the employment of braces and corsets to straighten the body must be discussed. As a rule it is best to discourage the use of appliances of any kind, because as long as they are used they exclude muscular activity and therefore tend to weaken them.

Lordosis—Lordosis may be either primary or secondary. Primary lordosis, though it occurs, is fairly rare. The writer has seen only one case of primary lordosis in a fairly large series of static deformities in children. This case was a boy about seven years of age. He recovered completely with two years of exercises and a support. It is usually the result of muscular weakness. Lordosis, secondary to other conditions, occurs more commonly. It is usually secondary to hip disease. In marked [illegible] contraction in one hip joint occurring after [illegible]itis the patient in order to place the diseased side parallel to the normal one, is forced to rotate the pelvis in such a manner as to considerably tilt the anterior half downward. With this maneuver the sacrum assumes a more or less horizontal position. The lumbar portion of the spine follows this motion. To prevent the trunk from falling forward the upper half of the spine must be bent backward, while the lumbar portion assumes a marked lordotic form. Lordosis in bilateral dislocation of the hip results from the location of the heads and shafts of the femora behind the sockets. The front part of the pelvis becomes too heavy, sinks downward and forces the patient, for the sake of retaining his balance, to compensate with an extreme lordosis of the spine. Finally, an excessive lordosis has also been observed in cases of spondylitis.

Scoliosis is a lateral deviation of the spine, accompanied by rotation of the vertebræ upon their vertical axes. It is possible to have a lateral deviation of the spine without rotation of the vertebræ, these cases being strictly those of the functional lateral curvature rather than of true scoliosis. It is true that many cases of scoliosis begin as a functional lateral curvature and the rotation of the vertebræ occurs at a later period; this is especially so when the spinal muscles are weak. Simple functional lateral curvature if treated early does not necessarily give rise to true scoliosis.

Etiology—Experiments have proven that the most essential factor in the production of scoliosis is the transmission of the weight of the upper part of the body through a vertebral column, which, by the enfeeblement of its various muscles, or by the habitual maintenance of a faulty position, has undergone lateral deviation. The constant pressure acting upon a spine so deflected will inevitably produce rotation of the vertebræ on account of the conformation of the constituent parts of the curved spine and their articulations. The condition is predisposed to by any cause of general debility, particularly rickets and anemia, and is greatly favored by overfatigue and the constant assumption of faulty postures. The latter, by causing a deviation of the spinal column, place the spinal muscles on one side at a mechanical disadvantage compared with those on the opposite side and if a faulty position be assumed habitually, the muscles that are at a mechanical advantage will maintain or even accentuate the curvature, eventually producing the rotation of the vertebræ. This rotation always occurs in one direction, the bodies of the vertebræ are rotated outward toward the convexity of the curve, while the spinous processes are rotated inwards toward the concavity, i. e., toward the middle line of the body.

There are a group of cases in which the curvature is the result of inequality in the length of the supports of the spine. This group is of extreme importance and embraces many causes which are constantly met with. Unless the base of support of the spine (sacrum) be horizontal, a certain amount of curvature must necessarily result. However slight the obliquity may be, it is sufficient to prove the starting point of a severe scoliosis in susceptible individuals. In robust persons, on the other hand, this obliquity may be corrected easily and pass practically unnoticed. A very common cause is obliquity of the pelvis the result of inequality of the length of the two lower limbs. This may occur from various causes, such as tuberculous hip disease, congenital dislocation of the hip, the arrest of development which follows infantile paralysis and simple asymmetry. In weak individuals scoliosis is a common complication of severe genu valgum or even of weak feet. The primary curve in this group is usually in the lumbar or lower dorsal region.

Another group of cases results from an inequality in the weight borne on the two sides of the spine. Common examples of this are seen in nursemaids who habitually carry children upon one arm, laborers carrying hods, pails or heavy weights always on the same side. As long as the individual is strong and vigorous and the weights carried are not out of proportion to the strength of the muscles, the latter are able to maintain their tone and retain the spine in the erect posture. When, however the muscular system is weak or the weight is excessive and especially when it is carried for long periods at a time, scoliosis is apt to result.

Weakness of the spinal muscles, aided by the habitual assumption of a faulty attitude is responsible for a large number of cases of scoliosis. As long as the patient is in good health the muscles upon the two sides of the spine act together to maintain the spine erect; but in certain individuals and especially at certain periods of life, muscular weakness occurs and the muscles are no longer capable of maintaining the spine in its normal position for any length of time. This is most frequently seen in girls between the ages of twelve and seventeen, a period which comprises the onset of menstruation and the abandonment of the free

vigorous life and exercises of childhood. It is a period often marked by a predilection for sedentary habits, the semi-recumbent position, confinement to heated rooms and the keeping of late hours, together with the assumption of tight fitting clothes which hinder the free play of the muscles so essential to the proper development of the trunk. The condition is still further aggravated if anemia is present.

One of the most potent factors in the production of scoliosis is overfatigue, due to prolonged standing, sitting or walking. Nursemaids, typists, school children continuously engaged in reading, writing or piano playing may develop scoliosis, should the general health be such as to cause enfeeblement of the muscles. A similar result occurs in girls who are in the habit of riding horse back for periods long enough to produce fatigue to the muscles of the back, leading to a faulty position of the spine. Scoliosis may also be produced in children if they are always carried on the same arm.

Scoliosis may be secondary to other affections of the spine or thorax. In these instances the curvature of the spine is mechanical and is produced by some alteration in that structure itself or in the capacity of the thorax. Familiar examples are lateral curvature secondary to empyema, collapse of the lung, rickets and tuberculous disease of the spine. Congenital defects such as supernumerary or absent ribs, variations in the size of the processes of the vertebræ, defects in the bodies of the vertebræ may all play an important role in the production of scoliosis. Paralysis of the back muscles resulting from infantile paralysis often gives rise to a very resistent type of lateral curvature.

Pathology—After a time organic changes occur in the ligaments and the bones so that a curvature, which at first could be easily rectified by appropriate position, becomes more and more permanent. The first change that occurs is an alteration in the various fibrous structures on the two sides, those upon the convexity being stretched and those upon the opposite side being proportionately shortened. In advanced cases, the vertebral bodies themselves become altered so that each is somewhat wedge shaped, the base of the wedge being directed toward the convexity of the curve. The surfaces of the various articular processes also become altered in direction. These bony changes are permanent and account for the intractability of the severe cases.

Symptomatology—Sometimes the spine is bent to one side in a single large C shaped curve, which may either involve the entire vertebral column, or may be confined to the lumbar or dorsal regions. Should a curvature of this type be marked, it will be necessary for one or more compensatory curves to be formed in the opposite direction for the adjustment of the center of gravity of the body as otherwise the erect position could not be maintained. These compensatory curves have their curvature in the opposite direction to the main one and are smaller in extent than the primary curve. In the common form of scoliosis there are generally two curves which have their convexities in opposite directions, so that the spine somewhat resembles the letter S. Of these, one is usually called the primary and the other the secondary curve. The primary curve cannot always be clearly distinguished, but a fair idea can generally be gained by considering the mechanism of the formation of the curvature. If due to an inequality in length of the lower extremities, the primary curve will be in the lumbar or lower dorsal region, whilst that in the upper dorsal is merely compensatory; on the other hand, if the curvature is due to faulty position, the primary curve is usually in the upper dorsal region, whilst the compensatory curve is below it. When the primary curve is very marked there may be three or even more curves in the spine; the primary curve is then generally very acute and at both ends of it there is a compensatory curve. This is usually the case in severe dorsal curvature, when there is a compensatory curve in the cervical region and another in the lumbar region.

A marked objective symptom is asymmetry of the thorax. The shoulder on the side of the convexity of the curve is higher than the other; the intercostal spaces are considerably wider on that side, whilst they are narrowed upon the side of the concavity. The spinous processes deviate from the middle line. The distance between the lower ribs and the crest of the ilium on one side is much increased, whilst there is a deep fold in the corresponding situation on the opposite side. The total body height is diminished. When there is [illegible] rotation of the bodies of the vertebræ, the th[illegible] undergoes extensive deformity; the ribs on [illegible] of the convexity of the curve are carried [illegible]wards, whilst they are carried forward on the opposite side. The shape of the two sides of the thorax is therefore greatly altered. On the side of the convexity the vertical measurement of the thoracic cavity is increased, owing to the separation of the ribs, but the transverse one is lessened. On the side of the concavity the reverse is the case, but probably the cubic capacity on the two sides is but slightly altered. The angles of the ribs on the side of the convexity become more acute, whilst those on the opposite side either remain unaltered or become very obtuse. The result is a prominent ridge upon the side of the convexity formed by the angles of the ribs with the erector muscles over them. The arm on the opposite side hangs away from the thorax.

The subjective symptoms are usually slight, but may become exaggerated in neurotic individuals or in those in whom the deformity is extreme. There is aching pain and a feeling of weariness in the back and loins, sometimes extending down to the thighs. When the deformity has been present a long time and extensive bony changes have occurred, there may be considerable pain partly from the pull upon the stretched ligaments and partly from direct pressure upon the nerves or viscera. The lung may be compressed upon the side of the convexity and patients with long standing curvature are apt to suffer from severe bronchitis; the heart may be displaced and the liver and spleen pressed upon.

Examination—The patient should be stripped to the hips and should stand in a position of ease with her back to the examiner, the garments being fastened with a safety pin to prevent them slipping down and to avoid the constant changes of position that accompany the endeavors to hold them up. The spinous processes should then be marked

upon the skin with a carbon pencil and a sheet of paper pressed over them so as to obtain a permanent record; the marks made by the pencil will be transferred to the paper, which can be varnished and retained for reference. A slight deviation of the spine is best detected by letting a plumb line fall from the spinous process of the seventh cervical vertebra. Any deviation of the spinous processes from the vertical can be measured. The next important point is to ascertain whether there is any obliquity of the pelvis. The patient is turned around, and the examiner, standing or kneeling in front, places a thumb upon each anterior superior spine and notes whether they are on the same horizontal level; in case of doubt, the patient should stand erect, with the feet together and the length of the lower extremities should be measured from the anterior superior spines to the floor on each side. The presence of flat-feet or knock-knee should also be looked for. The next point is to determine what amount of alteration can be made in the curvature by alteration in position; in other words, the flexibility of the spinal column is tested. The patient should be directed to hold herself as erect as possible, and any alteration in the curvature of the spine is then compared with the measurements taken in the position of rest. In slight curvatures marked improvement is produced by the effort of standing attention. Should the curvature be due to the inequality in the length of the lower extremities, suitable blocks must be placed beneath the shortened limb so as to make the pelvis horizontal and the effect upon the curvature noted. In early cases this will obliterate it entirely. The patient should next be made to stand erect and then bend forward gradually until the fingers touch the toes. The amount of rotation can then be estimated by noticing the asymmetry of the ribs. If it be desired to record this, a tracing of the contour of the posterior aspect of the ribs can be made with a pleximeter.

Prognosis—The method of examination is of great importance in its bearing on the prognosis and on the treatment, as it demonstrates the amount of flexibility remaining in the spine and gives a good indication of the best result that can be expected from treatment. When suspension fails to obliterate the curve entirely, we may fairly conclude that ligamentous and even bony changes have occurred in the spinal column and that therefore perfect restoration of the erect position is not likely to result from treatment. On the other hand, a hopeful prognosis may be given in those cases in which the spine straightens out completely and the chances are that with proper care and suitable treatment the curve can be entirely obliterated. A number of cases, especially those that are the result of some defect in the general health, will undergo spontaneous cure as soon as the muscles regain their tone. Of these, the ones which are more prone to undergo spontaneous cure are those in which there are two slight equal curves rather than a large single C shaped one, which tends to increase and to result in important rotation changes since there is no compensation. When the curvature is due to inequality in length of the two lower extremities the cases are very amenable to treatment if seen within a reasonable time and a good result can generally be obtained. The opposite is the case when the curvature is the sequela of some chest disease, such for instance, as empyema. The most important feature in the prognosis is the condition of the patient's health. Scoliosis associated with profound anemia is most difficult to treat and little beneficial effect upon the curvature can be expected unless the anemia can be successfully treated. The most difficult cases of all are in anemic girls about the age of puberty who also suffer from dysmenorrhea; when these condition are combined with a neurotic taint, the case may prove intractable. The age of the patient at the onset of the curvature is of great importance. In a very young child the vertebræ are soft and easily molded and there is a long period during which the spine may undergo serious structural alterations unless it be maintained in proper position. When the disease begins only a short time before ossification is complete, however, there is little time for great changes to occur in the vertebræ. The curvature will therefore develop much more slowly.

Prophylactic Treatment — Any patient with inequality in the length of the lower extremities should receive treatment directed to remedying the resulting obliquity of the pelvis. When a patient has been the subject of hip disease and is left with a deformity and shortening of the limb, the deformity should be remedied as far as possible and a high shoe should be worn on the affected limb, to make the two limbs the same length. Congenital dislocation of the hip should receive appropriate treatment. Apparatus will be required for cases of arrest of development following infantile paralysis, whilst genu valgum and flat-feet should receive proper attention. When heavy weights are carried upon one side, emphasis should be laid upon the importance of alternating the side upon which to carry them. Nurse maids should be told to carry children alternately upon either arm. When an arm has been lost, the patient should be forbidden to carry heavy weights; if enough of the limb remains to permit the fitting of an artificial limb, the weight should be carried alternately by the natural and artificial limb. When there is weakness of the spinal muscles, the ordinary rules for personal hygiene must be insisted upon. Weakly children or those suffering from rickets should be carried in the horizontal position; they should never be carried upright even when they have become strong unless they can be carried alternately on either arm. Massage of the back muscles with application of sea water douches is helpful. Special care is required in the case of the rapidly growing girls who are approaching the period of puberty. All heavy or constricting clothing about the chest and abdomen which interfere with the free play of the thoracic, abdominal, and spinal muscles should be forbidden. The child should be encouraged to play games, to lead a healthful outdoor life and to go through a mild gymnastic course. Sedentary habits, the desire to remain in the house in the recumbent position reading novels should be discouraged. The life of the two sexes should be assimilated as much as possible. Corsets of any kind are detrimental and if employed should not be permitted to compress the chest. This is about the period of life at which curvature is apt to occur as the result of faulty position. Some atten-

tion has been directed to the possibility of producing lateral curvature by faulty positions during sleep. Many children sleep upon the back. This is obviously the best position. A large number, however, lie on one side. If a child is in the habit of lying more upon one side than on the other, lateral curvature may occur. It is well therefore to encourage sleeping upon alternate sides if the child is unable to sleep on its back. The mattress should be firm and a feather bed should be avoided. The positions usually adopted by children at school when sitting at a desk, writing, drawing or when playing the piano are often faulty and may produce scoliosis. The child is generally either seated upon a form without a back or upon a chair the back of which is too straight and not high enough, while the seat is too far from the ground and there is a lack of proportion between the height of the desk and the chair or form upon which the child sits. The result is that the child soon becomes tired, brings the pelvis to the edge of the chair in order to enable the feet to touch the ground and support him and he is often obliged to tilt the pelvis in order to bring one foot into contact with the floor. The spine is thus unsupported and the child either stoops forward or bends to one side so that he may rest the elbow upon the desk at which he is writing. The lack of proper proportion between the height of the seat and the desk plays a very important part, for, when the desk is too high, the right arm has to be elevated if the child wishes to write, while if the desk is too low, it has to be depressed and the left shoulder is consequently raised. This may lead to a marked lateral curvature in a weakly child. The chief requisites for a school seat and desk are as follows: The back of the chair should extend upward as high as the shoulders and should be prolonged high enough to support the head, if the child suffers from a weak spine. The seat should be at such a height from the ground that the feet rest easily upon the floor, or upon a foot-rest inclined at an angle of about twenty degrees. The breadth of the chair seats should be equal to the length of the children's thighs and there should be just room between the seat of the chair and the under surface of the desk for the thighs. The precise measurements usually recommended are that the lower edge of the desk should be an eighth of the height of the girl and one seventh that of a boy above the seat of the chair. The writing desk should have a gentle slope so that the child will not be forced to bend forward too much when he wishes to read and write.

Any defect of vision should receive proper attention. Exercises to develop the chest muscles should be prescribed unless the child be obviously robust. Massage will also be called for when there is any actual weakness of the spine muscles; this important factor in treatment should never be omitted. When there has been disease in the chest, little can be accomplished in the way of prophylaxis. In cases of Pott's disease and rickets appropriate treatment for the disease will stave off the onset of scoliosis. After empyema or collapse of the lung, some curvature is inevitable; it may, however, be minimized by prescribing exercises directed to bending the spine in a direction opposite to that in which the curvature is expected to occur. These exercises should be begun before any curvature has been detected and should be persevered with for many years.

Active Treatment—In the scoliosis of infancy, the treatment recommended in kyphosis also applies. The general health requires attention; rickets must be treated by proper feeding, medication and hygiene. The child should be retained in a horizontal position, either in the arms or upon a suitably padded tray or basket. After the first year, the back support recommended for kyphosis may be employed, but recumbency must still be insisted upon, so that the back may be relieved from superincumbent weight. The child should always be sent to the country or the seashore for a considerable period if possible and massage to the back muscles should be applied night and morning. Walking should be discouraged. Mothers are anxious that the children begin to walk early, but the importance of the recumbent position should be pointed out and attempts at walking prohibited. The child should be encouraged to sleep upon the back, and may if necessary be fastened down upon a suitably padded wicker tray in that position. Should there be a marked curvature, however, the lateral position may be substituted for the dorsal, the child being taught to lie upon the side of the convexity of the curve in the dorsal region, with a firm pillow interposed between the mattress and the thorax, the object being to unfold the curve. The mattress should be firm; a feather bed should be avoided and the child should sleep with the head supported by one pillow.

SCOLIOSIS OF CHILDHOOD—Great care must be exercised in the treatment of curvatures during this period of life, for, although on the one hand the spine is extremely flexible and therefore can be easily influenced by this treatment, this fact may be an actual source of danger, because the curve, if neglected, will lead to such marked distortion of the bones when they become fully ossified as to render the treatment difficult. Before proceeding to attack the curvature itself, any cause that may originate or maintain the vicious position should be eliminated. Any obliquity of the pelvis, due to inequality in the length of the lower extremities must be remedied by suitable means, such as shoes or operation. Any faulty attitude acquired while sitting or standing at lessons or even in playing games, must be carefully inquired for and forbidden. Some other attitude or game which rectifies the faulty position thus produced should be substituted. Any optical defects such as myopia, should receive treatment; adenoids or enlarged tonsils should be removed. Mechanical exercises should always be advised with the view of strengthening the muscles generally and of restoring the tone of those to whose failure the curvature is due. They should be practised daily for ten minutes to half an hour at a time in the late afternoon; immediately after the child should lie down for a rest. Dumbbell exercises may also be performed on rising in the morning for five to fifteen minutes. The dumbbells should not exceed a pound in weight at the outset; as the patient becomes more accustomed to the exercises the weight may be increased, as may also the length of time during which the exercises are performed.

(a) *Cases in which the curve can be obliterated:*

Here the prognosis is good, as the muscular apparatus is probably alone at fault and no bony or ligamentous changes have as yet occurred. The object of the treatment therefore is to strengthen the back muscles and thus enable them to perform their function of maintaining the spine in the erect posture. One of the most important ways of doing this is by suitable exercises. A multitude of exercises have been advocated for the treatment of these cases, many of which are extremely complicated. There are, however, no specific exercises for the cure of this condition and the surgeon can easily design efficient ones for himself by observing the changes that have occurred and by the muscles that are at fault, ordering movements which will bring into play the defective muscles and mechanically rectify the physical changes in the trunk. These exercises should always be carried out in the presence of some one who will see that they are properly and regularly performed for the requisite length of time. The simplest plan is for the surgeon to supervise the first performance of each group of exercises as they are taught and to point out to the gymnastic master or to the parents the exact manner in which they are to be performed. It is well to teach a new set of exercises at each séance, or each alternate one, so that the patient's interest may be stimulated as much as possible and when the entire series has been taught, the performance should be judiciously varied. The exercises should be planned so that they are carried out first in the horizontal, then in the sitting and finally in the standing position, as the muscular strength improves. An important point is that many of the exercises are performed against resistance, the surgeon or some form of elastic apparatus opposing the action of the muscles. After the exercises are over, the patient should recline upon a couch in the prone position for at least half an hour. The period for which the exercises are performed may be gradually increased, if they are proving efficient and no fatigue is produced. At the end of a month or six weeks from the beginning of the treatment, after the simple exercises designd to improved the muscular system generally have been thoroughly learned and properly practised, the surgeon should ascertain what effect has been produced upon the curvature. Should it be found, as it probably will be in early cases, that the curvature has almost disappeared and that the patient can maintain the erect posture without any difficulty, little else is required beyond continuance of the treatment already adopted.

The object of postural treatment is to restore the spine to its normal condition, or even to slightly overcorrect the deformity. The posture employed must be adapted to the individual case, only those being chosen which correct the deformity completely. For example, the following postures will be found useful for a patient having a dorsal curvature which is convex to the right and has compensatory cervical and lumbar curves which are convex to the left. The head is carried well back and held erect. The patient then places the left hand at the back of the neck, with the fingers over the spine and the thumb resting about the middle of the sternomastoid, thrusts the elbow forward and to the left so the scapula is drawn away from the middle line. This exerts traction on the rhomboids and tends to pull the spines of the dorsal vertebrae to the left. The patient's right hand is now placed upon the right side of the thorax, the fingers behind and the thumb forward and makes firm pressure over the convexity of the dorsal curve, while the left arm and elbow are kept well forward. The body is now held rigidly in the improved position that this posture produces while an attempt is made to correct the lumbar curve by separating the right leg from the left by a short step outward so that the right side of the pelvis is depressed. The rotation of the bodies of the vertebrae may now be corrected by taking a short step forward with the left foot in order to twist the lumbosacral joint to the right. While the patient maintains this position, flexion and extension of the spine should be carried out, the head being alternately flexed with the rest of the trunk and kept extended by fixing the eyes on a distant object. Another excellent posture is that in which the patient stands erect with the hands on the iliac crests and makes forcible pressure downwards, as if to push a tight garment toward the knees. This makes traction upon the spine and straightens the curve out; flexion and extension exercises are then carried out.

These exercises are first performed as directed, and as the patient becomes accustomed to them and can perform them without fatigue it is useful to have them performed against resistance, the simplest way of doing which is to instruct the attendant to oppose the movements which the patient is endeavoring to carry out, gently at first and with gradually increasing force as the muscles grow stronger. These movements are only suited for those cases in which there is no permanent distortion of the spine—that is to say, those in which suspension of the patient causes the spine to become perfectly straight. As these exercises produce their effect and obliterate the curve, they may gradually be abandoned in favor of more simple home-drill exercises designed to improve the muscular system generally. These should be practised daily for a long period.

Mechanical supports are never necessary in this group of cases. Care should be taken to see that the patient does not wear stiff stays. The utmost that should be permitted are corsets without bones.

(b) *When the curve can be improved but cannot be obliterated:* The treatment of this class is most difficult, because the affection has lasted long enough for bony and ligamentous changes to have occurred which prevent complete restoration. The treatment, therefore, must have the double object of straightening the spine as much as possible and providing against subsequent relapses. The exercises employed to minimize the curvature are similar to those for the group just described, but they should be persevered with more energetically and should be carried out for a longer time.

Spinal braces of many varieties have been advocated. They should be employed in cases in which the curvature shows signs of increasing in spite of vigorous treatment on the lines just mentioned, or in those in which the pain is severe and the weakness of the muscles excessive. Even then the support should only be worn occasionally during the day and should be as light as is consistent with efficacy. It should be made of light steel bars

taking purchase from a pelvic band and should be furnished with suitably fashioned springs so directed as to apply pressure at the requisite spots, which are generally the convexity of the curve and over the angles of the ribs where they are rotated backward. The apparatus should be so fashioned as only to support the spine when it is in a position of rest; that is to say, it should not be sufficiently tight fitting to keep the spine immovable and therefore interfere with the proper action of the back muscles. At night no apparatus should be worn, attention being mainly directed to the posture in which the patient sleeps. Plaster jackets, applied while the patient is in suspension, have proven of great value in a large number of cases. These jackets are applied at regular intervals, during which time the deformity is gradually corrected.

(c) *Cases in which the curvature cannot be diminished by suspension:* In these cases such severe changes have occurred in the spinal column that it is hopeless to attempt any rectification, and the utmost that can be accomplished is to prevent the affection from increasing and to treat any symptoms, such as pain, etc., that may be complained of.

Summary and Conclusions: 1. Attention to posture should be instituted as soon as children begin to walk.

2. The idea that all faulty postures will be outgrown if left to themselves is a fallacy.

3. Using one side of the body in play or work should be discouraged. Children should be taught to use both sides efficiently.

4. Especial precautions should be taken in rickets, osteomalacia, and other conditions in which there are a deficiency of lime salts.

5. Proper feeding, fresh air and avoidance of sedentary habits, too many accomplishments, poorly fitting clothing, clothing suspended from the shoulders will in a large number of instances obviate the occurrence of faulty attitudes.

6. Proper measures instituted early will in a vast majority of instances obviate many hopeless deformities.

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CHILD HEALTH IN EUROPE.

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PHYSICIAN TO THE AMERICAN RED CROSS.

Never has there been more keenly realized than at the present time the profound effect of war upon succeeding generations and the dependence of the future of the nation upon the welfare of its children. This is attested by the fact that even in the early days of the war, when there were so numerous and pressing matters claiming public attention, many of the lands spared the time, energy and funds to organize bodies to care for the rising generation. As the struggle became drawn out, and the nations exhausted, the problem grew to exceed the resources of the people, and the lands were weighed down by the added sorrow of a gaunt, starving and stunted army of children and orphans. With the return of peace, some of the nations made a rapid recovery and turned with the keenest interest to welfare of their future citizens, whereas others found the health of their children even further injured by the deprivations of the first year of the peace.

At the present enough time has passed so that a rough general picture of the disastrous effects of war upon the child health of the various nations of Europe may be secured. In the present paper the writer has attempted to outline the more serious effects of the war upon the child health in representative countries of Europe and to outline briefly some of the measures which have been taken to preserve life and to build up a sturdy child population.

France.—The children of the occupied region of France, especially those over 6 years of age, suffered severely from malnutrition. Studies on thousands of children of the district of Lille made in May, 1920, showed that 87, 91, and 93 per cent. were below average weight at 12, 13, and 14 years respectively. At 12 years of age 84 per cent. were under weight, and at 13 and 14 years 86 per cent. On the other hand, the children between 7 and 9 years were in better condition. These retardations were reflected in the intellectual development of the children. Mental tests showed that children between 10 and 13 years were retarded on the average one-half year.

Numerous activities were undertaken to remedy these conditions as soon as the region was free of the invader. The most striking results obtained from the activities undertaken by various organizations were secured in the summer camps. It is reported that, in 1920, an average of 75 per cent. of the many thousands of children who were in camp gained in weight, that the average gain in height was 2 cm., and that 75 per cent. showed a marked mental improvement. The lasting benefit is attested to by the fact that 80 per cent. of them had no illness which required absenting themselves from school during the following year. By efficient postnatal care the Consultations des Nourrissons, organized under the auspices of the Comité d'Assistance, infant mortality has been markedly reduced in the liberated region during the past year.

During the years of the war and in 1919 there existed a milk shortage of serious proportions. In spite of the fact that the population of Paris was increased, the amount of milk supplied to Paris was reduced 50 per cent. Various measures were effectively taken to overcome this shortage, among which were ordinances which prohibited the use of milk for fattening calves, the prohibition of the manufacture of cream cheeses, the prohibition of the sale of milk in the cafés, and provision for the supply of milk to patients at the pharmacies on the prescription of physicians.

Vital Statistics: The birth rate in France has for many years been comparatively low. In 1911 the number of deaths was higher than the number of births. In 1912 and 1913 there was once again a natural increase, which in 1914 and throughout the war was replaced by a birth deficit. In the years 1911 and 1915 there was an average birth deficit of 6.7 per thousand. The natural increase of the year 1920, 3.6 per thousand, is, however, the highest reported since 1865.

Infant mortality has been fairly high in France throughout the past decade, the lowest figure being 104 per thousand births in 1912, and the highest during the war period, 141 per thousand in 1915.

The number of stillbirths and illegitimate births kept pace with the varying birthrate.

Czecho-Slovakia.—Czecho-Slovakia is chiefly an industrial State, and its agriculture, while important, does not yield sufficient foodstuff for the population. Industrial depression and a heightened cost of living have contributed to much suffering. The tuberculosis death rate is high and a large number of children have the disease. There is also a high incidence of eye diseases, which calls to mind the recent experimental studies on the relation of eye diseases to malnutrition.

Vital Statistics: There has been a steady fall in the birth rate of Moravia from an average of 36.8 per 1000 in 1881 to an average of 12 per 1000 in 1918. In the year 1919 the birth rate rose once again to an average of 19.8.

The infant mortality rates of Bohemia, Moravia, and West Silesia for the years 1911 to 1919 have averaged about 180, 186, and 192 per 1000 births respectively. The average of Czecho-Slovakia has been about 186 per 1000 births, which means over 50,000 infant deaths a year.

During the same period Moravia and Bohemia had a tuberculosis death rate of 328 per 100,000 higher than that of any other of a list of nine civilized nations. The total death rate has been proportionately high. A fairly constant natural increase of the population in these regions, averaging between the years 1881 and 1915 about 8.9 per 1000, was converted in the years 1915 to 1918 to a birth deficit which in the later year amounted to 11.3 per 1000. In 1919 there was once again a natural increase of 1 per 10,000 in Bohemia and 4.7 per 1000, a fairly marked improvement.

TABLE I.

Czecho-Slovakia—Infant Mortality Deaths per Thousand Live Births, 1913-1919

	1911	1912	1913	1914	1915	1916	1917	1918	1919	Aver.
Bohemia	197	181	175	175	215	186	178	188	132	180.5
W. Silesia	206	190	180	184	226	207	180	198	148	192
Moravia	...	...	184	178	228	196	183	198	134	186

Austria.—There are few lands in which the breakdown of the economic system has been so complete as in Austria. The very poor and many of those formerly well to do are equally affected. This state of affairs has seriously affected children of all ages and of all classes of society. In addition to the influence of undernutrition upon growth and development, the marked under nutrition of the mothers has had a telling effect on the newborn.

Studies made by Dr. T. Weiss on babies born between 1916 and 1919 showed the following: (1) The weight of all young babies was 15 to 20 per cent. under normal. (2) Children between 1 and 4 years averaged 33 per cent below normal weight. Of the children of the poor and middle classes, born during that period, 90 per cent. show more or less marked signs of rickets and anemia.

The prevalence of rickets and anemia is in part attributed to the extreme scarcity of fats and milk at that time. The milk supply of the city of Vienna is at the present time totally inadequate. For a population of 1,800,000, representing almost a third of the total population of the present-day Austria, there is no more than 60,000 liters of milk available, of which the greater part is adulterated. In the summer, half of this available supply is soured and unfit for infant-feeding by the time it reaches the market. This amount of milk is considerably less than a fifth required by the city. Various causes are assigned for this state of affairs. The low price fixed by the government for the sale of milk makes it unprofitable for the farmers to market it, and leads them to prefer to feed it to the cattle. In addition, lack of fodder tends to cause a reduction in the number of cattle in the country. The American Red Cross is interested in this problem and is engaged in remedying the situation through a cooperative arrangement for the supply of fresh milk.

A survey of the children under 6 years of age in Vienna made by the Central Committee for Child Welfare in October, 1920, revealed that among 83,500 of the 110,000 youngsters in that city 40 per cent. were badly undernourished, 10 per cent. very badly undernourished, and only 10 per cent. well nourished.

An interesting effect of the milk shortage is the marked reduction of the infant mortality due to intestinal diseases in Vienna in 1920, due in part at least to the fact that the mothers were forced to nurse their babies.

A survey of children between the ages of 3 and 14 years made in the city of Salzburg in the first half of March, 1920, revealed that 3,455 among 4,169 children were undernourished. The children were classified according to the Von Pirquet method, and the survey is illustrative of the state of affairs in the large cities and the industrial centers of Austria. On the other hand, some of the smaller towns, such as Lend, conditions of child health are fairly good.

The study of the vital statistics of Vienna is of real interest in connection with our topic.

Birth Rate: Between the years 1914 and 1918 the number of live childbirths in Vienna steadily dropped from 36,442 to 19,257 or 52.8 per cent. The decrease of legitimate births (43 per cent.) was less marked than that of the illegitimate (58 per cent). The number of stillbirths also dropped in the same period from 3,771 to 2.517 or 33 per cent. With the return of peace in 1919 the birth rate once again began to rise.

Infant Mortality: Though the number of infant deaths in the first years dropped numerically from 5,074 in 1914 to 2,941 in 1918, the average rate of infant mortality varies only slightly above the average prewar rate, ranging between 12.27 and 15.28 per cent. The drop in the actual number of deaths is attributable to the lowered birth rate. The rate of mortality of legitimately born infants was uniformally lower than the pre-war rate, ranging between 12.27 and 13.08. Possibly the more general nursing of the infants by their mothers accounts for the above-mentioned facts. This reduction is counterbalanced by a steady rise in the death rate of the illegitimately born, which rose steadily from 16.02 per cent. in 1914 to 23.07 per cent. in 1919.

Child Mortality: The figures of mortality of children between 1 and 5 years of age for the period 1914 to 1919 average slightly higher than those of the prewar period, about 2,018 as compared with 1,984 for the years 1912 to 1914. Taking into consideration the lowered birth rate, this figure represents an increase of 30 per cent. The mortality of children between 5 and 15 years was uniformly

higher during the war, averaging 1,426 for the years 1915 to 1919, an increase of about 34 per cent.

General Death Rate: The general mortality as well as the mortality from tuberculosis rose during the above-mentioned period.

Natural Increase: During the war 1915 to 1919 the natural increase of prewar days was replaced by a birth deficit, resulting in a depopulation of 100,000 or about 5 per cent. Since 1919 there has been a steady improvement.

Poland.—The miserable plight of the children of Poland in the latter years of the war was one of the most pitiful consequences of the struggle to be found in all Europe. The country was twice swept by two advancing and retreating armies, each completing the destruction that the other had left undone. A survey of the health of the children up to 6 years living under these conditions, made by Dr. Thaddeus Kopee in 1917 and 1918, shows the following:

1. The number of well-nourished children dropped from 60 per cent. of the total children at the age of one year, to an average of 40 per cent. in the succeeding years. The number of emaciated children rose from 15 per cent. in the first year of life to an average of 30 per cent. in the succeeding years.

2. The average weight of the children was 23 per cent. below normal at one year of age, and dropped to 35 per cent. below at five years. The minimal weights recorded were 50 to 60 per cent. below normal.

3. Starvation edema was present in 1 per cent. of the children in the first year of life, 13 per cent. in the second year, 10 per cent. in the third, 8 per cent. in the fourth, and 7 per cent. in the fifth.

4. The retardation in the development of the children consequent upon malnutrition, delayed their commencing to walk. Among the children 4 to 5 years old, 4 per cent. had never been able to walk. In addition to these children who had never developed the power to walk, there was also a large number who because of feebleness, disease, or maldevelopment, had retrograded and had lost the ability to walk, this number amounting to 27 per cent. of the total at 4 to 5 years of age. One-third of all the children 5 years of age were unable to walk.

5. Of the children 5 years of age, 26 per cent. showed signs of tuberculosis.

Poland is essentially an agricultural country, and with the return of peace ample crops have insured a good supply of food. The following is a survey made of the physical condition of children from a number of orphanages in several sections of the country in April, May and June, 1921. Height, weight, and physical condition were determined, and the children were classified as: A—well nourished; B—fairly nourished, and C—poorly nourished. As a rule it was noted that the boys were better nourished than the girls. The findings show a marked improvement in conditions as compared with Dr. Kopee's survey.

	A.	B.	C.
Station 1.			
April	61.11 per cent	32.65 per cent	6.27 per cent
June	67.24 per cent	28.67 per cent	4.08 per cent
Station 2.			
April	57.77 per cent	33.00 per cent	9.25 per cent
June	65.32 per cent	27.87 per cent	6.68 per cent
Station 3.			
April	60.63 per cent	32.08 per cent	5.85 per cent
June	58.86 per cent	34.86 per cent	6.48 per cent

Birth Rate: The birth rate of Poland has steadily dropped between the years 1891-1918 from 40 per 1000 to 14.6 per 1000. During the years 1919 and 1920 there was an increase in the number of births, the figures being 26.7 and 29.7 per 1000.

Infant Mortality: Infant mortality in Poland during the period 1904-16 was uniformally high, averaging about 25 per cent. of the total number of deaths. In some districts the rate was very high. In Dabrowa Gorncza, the infant mortality, and in the Province of Plock, 37.4 per cent. It must be remembered in connection with these percentages that the general mortality during the same period was also high.

Natural Increase: The natural annual increase in population due to the excess of births over deaths dropped from 17 per 1000 in 1891 to 6 per 1000 in 1914. In the following years there was a natural decrease which in 1917 amounted to 24.2 per 1000. During the years 1919 and 1920 there was once again a natural increase of 3.7 and 9.4 per 1000 respectively.

Relation of Infant and Child Mortality to the Size of Families.—The oft-repeated observation of the increase in infant and child mortality with increase in the size of families is made once again, in an exaggerated form, in two cities of Poland—Warsaw and Lodz. The records of both of these cities show a steady rise in infant and child mortality with increase in the size of families, ranging from an average of 17.3 per cent. in families with three children to 56.2 per cent. in families of 12 children or over.

Conclusion.—There has been in the last year a marked improvement in child health, in the countries considered, as compared with conditions existing during and shortly after the war. This is also true, with several exceptions, of all the European countries. A gradual return to normal conditions and the general help of the more fortunate lands of the world have combined to effect this recovery. The widespread keen appreciation of the seriousness of the child-health problem promises much in the way of future improvement.

THE BLADDER BOGY.*

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IT seems to be definitely established that the percentage of recurrences after operation for hernia is larger than it should be; it seems equally well established that recurrences after operation for direct hernia are not only more frequent than they should be but are also more frequent than are recurrences after operation in indirect hernia. Many operations have been devised, most of them variations of the familiar Bassini method, to do away with this most unpleasant feature of the treatment of this condition. I should like to call attention to the fact that most of these methods—many of which have very excellent features—are directed toward the repair of the musculature of the inguinal region. So general appears to be this attitude toward the radical cure of hernia, namely that muscular recon-

*From the Clinic of the First Surgical Division of Fordham Hospital, New York City.

struction is the main point in the treatment, that I do not believe that a word of caution is amiss. The first step in the cure of the hernia should be—and is—the proper reconstruction of the parietal peritoneum at the point where the hernia occurs; whether this reconstruction be well done, or half done, determines the success or failure of the operation in a very large percentage of cases—without regard to the type of muscular reconstruction employed.

Ochsner has called attention to the fact that a complete removal of the sac and its fatty appendages will result in a cure in many cases of a certain type of hernia—the femoral. A certain very excellent surgeon of this city—who may not wish to be quoted—has stated that after the complete removal of the sac in the indirect variety of inguinal hernia it did not matter what variety of muscular repair was used—the patient would be cured. This appears to me to be an unsound, and extreme, view, but it would seem that there must be some basis for it. It would appear to be much safer to view the matter from the standpoint that both peritoneal and muscular repair are necessary, and that to insure against recurrence both must be well done. It is because I have felt that this matter of peritoneal repair is often slurred, and is frequently, in discussions, relegated to a very minor and unimportant position, that the present remarks are offered.

The necessity for the high ligation of the sac is well recognized. It is essential that the sac be ligated so high that the site of the "neck" be flush with the contiguous parietal peritoneum. If there remain any portion of the funicular process it is apparent that intraabdominal force will be directed at the newly repaired spot, and that this persistent funicular process will augment the intraabdominal force or pressure by supplying it with a wedge with which to breach the new-formed internal inguinal ring and inner wall of the new canal. The word "neck" is enclosed in quotation marks to call attention to the fact that as generally used and ordinarily conceived the word is misleading; to look upon the hernial sac as a process of peritoneum which resembles in some ways the finger of a glove, and to consider that it departs from the parietal peritoneum in much the same way as the finger of a glove leaves the body of the glove—abruptly—is incorrect. The fundus of the sac is largely determined by its contents, both as to size and shape; that portion of the sac which lies within the inguinal canal is limited and shaped by the walls of the inguinal canal, but that portion of the sac which lies within the internal ring is shaped by two factors: (1) the original shape of the performed peritoneal process itself, which originally may have had a sharp enough inner mouth, *plus* (2) the acquired shape, the result of the persistence of the hernia which has caused a bulging at the internal ring, in which the surrounding peritoneum takes part. Thus we see that superimposed (from the abdominal side) upon the original neck of the sac there is present a funnel-shaped process of tissue composed of the parietal peritoneum in the region of the internal ring. To destroy this funicular process should be the aim of the surgeon as the *first* step in the cure of the hernia. These remarks apply to indirect hernia in general and, with a little change in phraseology to fit the difference in anatomy, to direct hernia as well.

In the matter of the reconstruction of the peritoneum in indirect hernia the problem is not a difficult one; the ligation of the sac high up and flush with the contiguous parietal peritoneum is a mere matter of proper dissection carried out safely and with assurance, because the operator meets with no anatomical peculiarities to render him uncertain, or confuse him. It is a simple matter of familiarity with the tissues in which the surgeon works. With the problem of the high ligation of the sac in direct hernia, however, confusion enters; far be it from me to suggest that the occasional herniotomist is not so sure of his tissues and so certain of his anatomy here as he should be! Perish the thought! Nevertheless, such is the case.

Observation of the work of many men—many *good* men—coupled with my own experience until recently, has shown me that the herniotomist is at home at the level of the peritoneum when dealing with indirect inguinal hernia, but that this structure is not so well known to him when working toward the median line at the lower and inner end of Hesselbach's triangle. A comparison of the peritoneum in the region of the necks of the sacs of the indirect and direct hernias serves to bring to light many well known and significant differences; two alone are sufficient to dwell on here—the vascularity, and the presence of properitoneal fat.

In indirect hernia the sac is composed of thin peritoneum and little or no properitoneal fat; also the vascularity is nil. The direct hernial sac is composed of the same thin peritoneum, but with a thick deposit of properitoneal fat which is definitely and markedly vascular. Ligation of the sac of the indirect hernia is usually accomplished with greater efficiency than ligation of the sac in direct hernia; recurrences are less frequently found after operation for indirect hernia than after operation for direct hernia; I believe that these two facts have much more than a coincidental relation. Ligation of the sac in direct hernia by the usual method—transfixion—results frequently in bleeding from the vascular properitoneal fat; a simple ligature thrown about the sac, without transfixion, fails to hold in the soft and slippery fatty tissue, with the result that the sac pops open and must be again isolated and closed. If this popping open of the sac occurs at the time of operation it is merely annoying and results in delay; if it occurs after the muscular repair has been made the results may be much more serious, an actual localized evisceration being the certain outcome. The method of choice should be the suture of the sac, in the same manner that closure of the peritoneum is secured in any laparotomy—any *other* laparotomy; and greater security is obtained if the closure is made with some form of hemostatic suture such as the lock-stitch. So much for the method of closure of the peritoneal sac; now as to the *place* at which such closure should be made.

Again we must consider that we are at a fundamental stage of the repair of a hernia and that the sac must be closed flush with the contiguous parie-

tal peritoneum. It appears simple, and it is simple —or would be but for the introduction at this point of the Bladder Bogy! The mental hazard of golf applied to herniotomy! A mental hazard and a bogy for the reason that in nine cases out of ten it does not exist. In at least nine cases out of ten the bladder is *not* in such a position as will permit it to be injured in the closure of the peritoneal sac of a hernia.

The picture I have observed so many times is about as follows: the herniotomist has reached the stage of closure of the sac; he notes the apparent thickness of the peritoneum—in reality the peritoneum is no thicker but appears so because of the deposit of properitoneal fat—he notes the vascularity, remembers that the bladder is sometimes found in the sac or forms part of its wall, realizes that the peritoneal attachment of the bladder is not unlike the picture presented by the *normally* thick sac, points a casual finger in a general southeasterly direction as he says, very firmly, "that is bladder," and proceeds to close the peritoneum in such fashion as to encroach as little as possible on the structures toward the median line; he permits himself to forget that the flush closure of the peritoneum is an *essential* part of the operation for the *cure* of hernia, and feels that he has done well in avoiding injury to the bladder, which usually has been in no danger of injury for the good reason that it has not been present at the spot under suspicion. The above is written without thought of carping criticism; it is not a product of the imagination but rather reminiscent in character; it combines observation with introspection; it is written with feeling.

"He jests at scars who never felt a wound."

A very simple and useful expedient is now in use on the First Division of Fordham Hospital; one which does away with uncertainty, allows us to proceed with assurance in treating the neck of the sac in direct hernia, and prevents injury to the bladder in the infrequent case in which this structure actually obtrudes upon the field of operation. Before operation in all cases of direct hernia, and during operation in all cases in which the presence of the bladder is suspected in relation to the sac, the bladder is moderately distended with boric acid solution.

We believe that this simple procedure is of definite value in that it permits us boldly to suture the neck of the sac in such manner that the resulting suture line shall be flush with the parietal peritoneum, and at the same time outlines the bladder so clearly that injury to it is as nearly impossible as it should be. We have been much interested to find that the outline of the bladder, in these injected cases, comes nowhere near the neck of the hernial sac, in at least nine out of ten cases, and could not be included in a ligature or injured with a suture placed in such manner that the resulting ligation or suture-line would be flush with the parietal peritoneum. In the tenth case there is not a momentary doubt in the mind of the surgeon as to whether the bladder is present or not, and injury is unthinkable.

17 WEST SEVENTY-THIRD STREET.

ACUTE INFECTIONS INTO THE SEBACEOUS GLANDS AND HAIR FOLLICLES OF THE NASAL VESTIBULE.*

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THAT the common and usually trivial boil in the nose can suddenly terminate fatally by extension of the infection through the venous channels to the cavernous sinus, is not realized by the laity and not, I fear, any too well recognized by many physicians. When only two textbooks on rhinology mention furuncles and do not hint, even, that there might be grave complications, and also, when only a few textbooks of General Surgery mention the subject, it is no wonder that this condition is considered so lightly. One striking fact in the literature is that most of the cases are only recognized when they are well advanced and hopeless, and then usually by the consultant who reports the case.

If anything is to be done to cut down the mortality from these infections it will be by early recognition that the cavernous sinus is threatened and very prompt measures taken to prevent it.

Etiology—The predisposing and exciting causes are the same as those of furuncles elsewhere on the skin, plus bad habits of picking the nose and pulling out the vibrissae, and infection from the nose passing through the vestibule. The staphylocossus is the common organism but it may be streptococcus.

Symptoms—Pain, tenderness, redness and circumscribed swelling in the vestibule, sometimes showing through to the external skin, are the usual symptoms. Later, softening at the centre with rupture and discharge of pus and slough "core" occur, followed by prompt healing. This trivial discomfort may suddenly become extremely serious by extension to the cavernous sinus; this may be due either to attempts at opening, usually with a dirty needle at home or by squeezing and rupturing nature's barrier, thus driving the infection into the less resistant subcutaneous tissue, or picking the head off the furuncle with a dirty finger nail, or, by too free incision, opening up new avenues outside nature's barrier, or in other cases, it seemed to have traveled the venous channels as a result of what we term lack of resistance to infection.

Diagnosis—A furuncle or collection of them should offer no difficulty; in fact, the patient usually has correctly diagnosed his red, swollen, painful nose as a boil and usually has operated with a needle and squeezed the same, seeking medical aid because it is getting worse under his treatment.

Complications—There may be sloughing of the inferior lateral cartilages. The cavernous sinus may become infected more frequently than is generally thought and it is one's duty to forestall this calamity, if possible, for as is well known, the mortality of cavernous sinus thrombosis is practically 100 per cent.

It behooves us to manage the case so that the infection will not reach the sinus, if it can be avoided.

Seeking light from the literature, one feature of

*Read before the twenty-sixth annual meeting of the American Academy of Ophthalmology and Oto-Laryngology, held in Philadelphia, Pa., October 17, 1921.

nearly all the reports is that the cases were not seen until too late and diagnosis made still later. Also, that vestibular furunclosis is not well classified; cases are found in with other case reports. Again, as to when and how the primary focus was handled is not clear enough to draw any constructive deductions, whether the cavernous sinus thrombosis came from neglest or mismanagement, or was so fulminating that nothing could be done.

With a vestibular infection a tentative diagnosis of cavernous sinus thrombosis should be made on the appearance of any of the following eye or orbital signs which should be considered very suspicious: Swelling of the lids, chemosis, pupillary changes, deep seated headache, beginning ptosis and exophthalmos, lacrimation, congested retinal veins, symptoms of sepsis. Later, when ophthalmoplegia, pronounced chemosis, edema of the lids, and exophthalmos plus cerebral and septic symptoms develop, the case is hopeless and it usually is only a matter of a few hours before the opposite eye indicates that both cavernous sinuses are thrombosed and dissolution is near.

Treatment—Though most vestibular furuncles are trivial affairs, it should ever be remembered that, from poor resistance of the patient or bad management, a seemingly trivial affair may explode with fatal results. When the patient is fortunate enough to be seen early, my procedure is to use wet dressings inside and out and, as soon as there is evidence of pointing, to make a small incision at this place and never to go outside of nature's barrier; by applying suction to draw out the infective material; to fill the cavity with bismuth paste between treatments, and never to squeeze the swelling which might cause rupture into the subcuticular tissue where the chances of tissue resistance are much lower. This treatment seems to be much better than extensive incision and expression which is so often mentioned in the literature of the cases which later developed cavernous sinus thrombosis. I have treated a number of cases in which the local involvement was severe, yet with a small incision entirely within the barrier and suction, they have recovered without complication except sloughing of the inferior lateral cartilage in three cases.

As this infection extends along the anterior facial, angular and superior ophthalmic veins to the cavernous sinus above and perhaps by the deep facial vein and pterygoid plexus below, it seems rational to ligate the anterior facial vein near the inner canthus, as *Bullock* (1, 2) reports in one successful case of upper lip infection, and also to ligate the anterior facial vein above the deep facial vein at the anterior border of the masseter muscle the minute you feel that the infective area is increasing instead of diminishing, or, if there is the slightest orbital or ocular symptom of cavernous involvement.

As lateral sinus thrombosis sometimes recovers, similarly, why may not the cavernous sinus overcome a slight infection if further infective supply is stopped? At least facial vein ligation is a simple procedure and may save the patient's life. As up to the present time surgical attack of the cavernous sinus for anterior infections has failed to cure (3, 4, 5, 6, 7, 8) and has in a few incidences even failed to open the sinus, further technical experience and earlier diagnosis will probably produce better results in the present hopeless situation by one of the different methods.

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A BIOCHEMICAL EXPLANATION OF THE SILICA MOLECULE.

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The silica molecule of the human cell has an important function to fulfill in many circumscribed infections such as abscesses, fistulæ, boils, carbuncles and tubercles. By an ingenious method this inorganic constituent limits the spread of infection and is a means of supporting the leucocytes in their combat against invading bacteria.

The Destiny of Silica-Bearing Food.—With the exception of oxygen, silica is probably the most widely distributed and abundant of elements.* Friedenwald and Ruhräh[1] remark that it is present in many vegetables, but the part played in the economy is unknown. Many years ago, Liebig, the chemist, advanced a law that an absolute amount of tissue-salts, such as silica, is necessary to maintain the processes of nutrition. Kunkel[2] detected exceptional quantities of silica in the human pancreas, and several authors have since presumed that this organ gathers the silica intake, releasing it into the circulation when it is needed, just as the liver acts as a depot for the distribution of iron (hematin) and the thyroid for iodine (thyroxin). At any

*In the classification of elements in the human economy carbon, silica, titanium, and zirconium are grouped in one family because of their close relationship.

rate, the knowledge of silica as an *essential component of connective-tissue* was established in the early days of organic chemistry. Schulz[3] in 1901 reported the silica content of this tissue as being of constant proportion[4].

A Basic Theory on the Action of Silica.—When Schuessler[5] founded in 1872 an independent biochemic school of therapy he reasoned that a disturbed silica molecule of the connective-tissue cells would result in disease, such as an abscess formation, and that by supplying silica to these tissue cells their function would become restored, thus, causing the collected pus either to be carried off by the lymphatics or to ripen and open spontaneously. But this theory does not explain the method of action. In the revised editions of this work there is no mention of the tactics of the defending leucocytes and the fate of the bacteria.

The Effect of Bacteria on Silica.—That bacteria shatter the neutral salts in the molecule is conceded. As proof, Klett[6] ascertained, when testing many products in the presence of bacteria, that *bacterial enzymes have the chemical power of reducing sodium silicate.* However, no biochemic interpretation was attached to this finding by Klett or any other investigator.

Silica As a Protection Against Tubercle Bacilli.—Kühn[7] observed that guinea pigs are rendered immune to tuberculosis after receiving injections of silicic acid. Some years ago Wilde[8] recommended a solution of sodium silicate as an ideal form of treatment. Recently Gonnermann[9] reported brilliant results with silica preparations in tuberculosis.

With these facts and opinions as a guide we will attempt to formulate:

A Biochemic Theory.—1. Silica is widely scattered in essential food products.

It is absorbed and assimilated by the human tissue cells.

While found by analysis in all structures and organs of the body it is notably present in the connective-tissue cell.

2. "Bacteria require the *same kind of food,* which they select, assimilate, and excrete in much the same way *as the cells of the higher animals.*" (Victor C. Vaughan[10].)

Laboratory methods demonstrate that bacteria have the ability chemically to reduce soluble silica.

It follows that *bacteria may digest the silica molecule* as well as other components of a human cell.

Since silica is the preponderant neutral salt in the connective-tissue cell, bacteria may dissipate it, causing a *famine* of this element at the site of bombardment.

If the human economy has a sufficient supply of silica in reserve, temporary silica starvation at the point of bacterial attack is immediately remedied by a *replacement of silica molecules.*

3. On the other hand, when nature fails to act with such favorable promptness in regrouping displaced or lost silica molecules, certain types of pus-producing bacteria (staphylococci) may gain a foothold at a focal point within the body.

In the event of suppuration, a *defensive barrier* of connective tissue, loaded with silica molecules, is formed around the nucleus of pus-organisms to resist their systemic advance.*

(*a*) This *fibrous wall* which encysts an abscess cavity of pus cells, bacteria, and debris, (*b*) the area of *serofibrinous exudate* in a boil and carbuncle, and (*c*) *granulation tissue* (connective-tissue cells) in a wound are very *rich in silica.*

Thus, pus-forming bacteria become less potent from *want* and even perish by *self-destruction* when successfully *pocketed by a silicated zone* ("silication").

4. Since a "tubercle" in lung tissue is rarely present without pus-forming bacteria, a similar formation of connective-tissue is built up to imprison the tubercle bacilli and associate bacteria.

The "healing" of tubercles is effected by a new formation of firm connective-tissue, essentially rich in silica. A fibrous capsule shuts off this formation from neighboring tissues, preventing the tubercle bacilli from escaping through blood vessels.

Therefore, an active case of *tuberculosis* faces a condition of *silica hunger* and "silication" is impossible because the bacteria continue to feast on the systemic supply of silica.

Silica appears to be an actual protection to human life. Hence, the term "healing by silication" in the instance of a tuberculous lesion.

5. If silica is reduced as nearly as possible to an atomic state, for specific example, in colloidal form, it may serve as a remedy.†

Sodium silicate (chemically pure water-glass) is of a colloidal nature and assimilable to form *colloidal silicic acid* (a true colloid). After this simple step, it enters the circulation and combines with bases to yield a highly complex derivative. A chain of silica atoms conjugates with the complex chains of the other elements to compose units in a cell. Silica is probably oxidized to silicon dioxide just as carbon is converted into carbon dioxide.

6. When the silica molecule is distributed it affects the other molecules in greater or less degree. A change in the character of the connective-tissue cell is thereby produced by giving the cell the proper impulse with its own specific substance (silica), the inhibited molecules reset themselves to a normal grouping and speed. An example in point is the exciting influence of thyroid extract in restoring the arrested function of the Thyroid Gland. In the words of Garretson[11], "When one has but to *tickle* the gland, as it were, by stimulation through its own active principle, most glowing results are obtained."

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Medicolegal Notes.

Physician's Testimony as to Patient's Declarations as to Cause of Injury Inadmissible.—The Court of Errors and Appeals of New Jersey states the general rule to be that the declarations of a patient as to his symptoms, made to his physician or surgeon for the purpose of treatment, are admissible in evidence, since they derive some credibility beyond that of hearsay from the fact that the patient expects his physician or surgeon to be guided by such declarations in administering remedies and so has an incentive beyond the ordinary obligation to tell the truth. "But when such declarations are made, not for the purpose of treatment, but for the purpose of leading the physician or surgeon to form an opinion to which he may testify as a witness for the defendant, not only is this reason for credibility absent, but instead self-interest becomes a motive for distortion, exaggeration, and falsehood. Hence it is the better conclusion that declarations made under such circumstances are not competent evidence on behalf of the declarant." The rule is approved by Prof. Wigmore on Evidence, who cites the opinion of the Supreme Court of Massachusetts in Roosa v. Loan Co., 132 Mass. 439, holding that the statement by a patient to his physician of the cause of an injury from which he is suffering is inadmissible as evidence of that cause in an action for the injury.

It is therefore held, in a prosecution for procuring a miscarriage, that a physician's testimony as to the woman's statement to him, when he attended her, as to the cause of her condition, was inadmissible.—State v. Bruick (N. J.), 114 Atl. 547.

Order for Physical Examination of Plaintiff Should Not Include Blood Test or X-Ray Photograph.—The New York Supreme Court, Special Term, Monroe County, holds that, under section 873 of the Code of Civil Procedure, a physical examination in the nature of a blood test will not be granted in an action for personal injuries. The court says: "The right to a physical examination is purely statutory and should not be extended by construction beyond the intention of the Legislature when the statute was enacted. A blood test involves a puncturing of the human body, and while it may not be attended with any appreciable pain or reasonable apprehension of danger to health, it cannot be said that such a test was within the contemplation of the Legislature when the statute relating to physical examination was enacted. If the examination is to be extended to something not ordinarily understood by that term, it should be left to the Legislature to so provide." The court cited Lasher v. S. Bolton's Sons, 161 App. Div. 381, and Gregory v. Acme Road Machinery Co., 175 App. Div. 473, in which cases it was held that, under this statute, a plaintiff need not submit to have an *x*-ray picture taken on behalf of the defendant.—Hoyt v. Brewster, 189 N. Y. Supp. 907.

Calling One Attending Physician Held Not a Waiver of Privilege as to Another Attending at a Different Time.—The New York Appellate Division holds that, under section 834 of the Code of Civil Practice, prohibiting disclosures by a physician of information acquired in treating a patient, the calling, in a personal injury case, of one attending physician does not constitute a waiver as to another physician who attended the party at a different time. The court refers to the opinion of the Court of Appeals in the case of Capron v. Douglass, 193 N. Y. 11, 83 N. E. 827, a malpractice action, where it was held that where the plaintiff himself, upon the stand, had testified as to what took place with the physician offered by the defendant as a witness, the evidence of such witness should be received, as the plaintiff had waived his privilege. It was also there held that where the evidence of one physician is received without objection for the receipt of the sinus, further technical proof presented, and took part in the examination. The Appellate Division does not consider the Capron case held any more than this; but the language used has been construed as holding that where one physician is called and describes the patient's condition, another physician who attended him at about the same time may be called by the opposite party to describe his condition at the time when such physician attended him. Before the Capron case the Court of Appeals had decided four cases, the first being Hope v. Troy & Lansingburgh R. R. Co., 40 Hun 438, affirmed 110 N. Y. 643, without opinions, in which it had been decided by the Supreme Court that the calling of one physician did not waive the privilege as to another physician who treated the party at a different time. The Appellate Division does not think the Court of Appeals intended, by its decision in the Capron case, to overrule these decisions and establish an entirely different doctrine, without referring to the decisions. The court says: "It is not unreasonable to suppose that cases might arise where a party would be willing to have one attending physician disclose all he knew about the patient's condition, when at the same time the party would be willing to forfeit all of the benefits which he might derive from his cause of action rather than have another attending physician disclose information which he had obtained in treating the party for the same injury."—Hethier v. Johns, 189 N. Y. Supp. 605.

Mistaken Use of Word "Accident" Instead of "Injury" in Medical Testimony.—In an action on an accident insurance policy, alleging death from blood poisoning from a wound, a medical witness, who examined the insured after the poisoning had progressed from the thumb up the arm, was allowed by the trial court to testify on behalf of the plaintiff that the poisoning was from external means. The Supreme Court of Nebraska, on appeal, saw nothing improper in the admission of that testimony, since the doctor testified that poisoning of that kind in that locality always came from without through an opening in the skin. On cross-examination he was asked, if septicemia had been in the body prior to the injury, whether or not it might not extend to the surface and manifest itself there, to which the doctor answered that he had only one opinion about this case—that the poisoning came from without, from "an accident." It was contended that the doctor was thus allowed to express his opinion that the injury was the result of accidental means, and therefore that the testimony was improperly received. Such an opinion as to a conclusion of fact could not, of course, be received as evidence. The court, however, understood the doctor to mean "injury" instead of "accident," and that he was not attempting to give evidence as to how the injury had been caused, and therefore it considered the answer could not mislead the jury.—Hornby v. State Life Ins. Co. (Neb.), 184 N. W. 84.

Ordinance Prohibiting Hospitals for Contagious and Infectious Diseases in City Held Invalid.—The California Supreme Court holds that a city ordinance prohibiting the maintenance anywhere in the city of any hospital for the treatment of contagious or infectious diseases is wholly unreasonable and therefore not justified as an exercise of the city's police power. "Such prohibition," the court said, "is very different from regulation, and can be justified only on the ground that such a hospital, no matter how well conducted, is a menace to the public peace, morals, health, or comfort. That a well conducted, modern hospital, even one for the treatment of contagious and infectious diseases, is not such a menace, but, on the contrary, one of the most beneficent of institutions, needs no argument. There is not the slightest danger of the spread of disease from it, and this is the only possible ground on which objection could be made to it. We have no hesitation in holding an ordinance prohibiting the maintenance anywhere within a city of an institution so necessary in our modern life and so beneficent to be wholly unreasonable and invalid." The plaintiff, a corporation formed for benevolent purposes, owning and operating a hospital for the treatment of tuberculosis, was held entitled to have the enforcement of the ordinance enjoined.—San Diego Tuberculosis Association v. City of East San Diego (Cal.) 290 Pac. 393.

MEDICAL RECORD.
nent of connective-tissue was established ... Schulz ...
A Weekly Journal of Medicine and Surgery.

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A MUCH NEEDED STUDY OF THE NARCOTIC PROBLEM.

A RESOLUTION has been introduced into Congress by Representative Volk, who is a physician, calling for the appointment by the Speaker of the House of a committee of fifteen, including therein all the members of the medical profession who are also members of the House of Representatives, to make a thorough inquiry into the subject of narcotic drug addiction in the United States. The scope of this investigation will include all the data available regarding the methods of treatment of addicts by private physicians, institutions, and sanatoria, and the effectiveness of the present laws and their interpretative regulations in the control of smuggling and the abuse of narcotic drugs. The committee as a result of its studies will propose new legislation, if necessary, for the control of narcotic drug addiction.

In the preamble to this resolution it is stated that medical and administrative authorities estimate that there are between one and two million drug addicts in the United States, many of them being ex-service men, and that "many of the rulings of the Federal Government and the provisions of State narcotic laws and sanitary codes of municipalities of the United States point to an organized conspiracy on the part of certain administrators and physicians to drive narcotic drug addicts into established sanitaria purporting to treat and cure narcotic drug addiction." Furthermore it states that medical research has brought out conclusive scientific proof that there are grave physical reactions in the body of an addict deprived of his drug, resulting in acute discomfort, collapse, and sometimes death; that the phenomena of deprivation duplicate those evidenced in cases of infection; and that sera from the blood of animals during drug withdrawal have produced the complete symptomatology of drug withdrawal when given to unaddicted animals of the same species. All these facts, the preamble continues, have been ignored in the administration of the Harrison narcotic law, and in that of various State narcotic statutes and municipal sanitary codes and regulations, "by the issuance of rules and regulations making it impossible for physicians to treat narcotic drug addicts without fear of arrest, indictment, and conviction, or interference and prosecution by the criminal authorities." Such administration, the preamble concludes, has resulted in an increase in smuggling and illicit peddling of narcotic drugs, an increase in addiction, and an exaggeration of evil conditions in the underworld due to the existence of a criminal type of addicts.

If existing conditions are one-half as bad as Representative Volk sets forth in the preamble to his resolution—and everyone knows that some of the evils he depicts do exist—it is time that such a study as the resolution contemplates were undertaken. European authorities are nearly unanimous as to the existence of a narcotic drug disease, but in this country such a theory is vociferously opposed by a number of lay and medical persons, most of them with little or no practical experience in the management of the drug addict. The mass of the profession in the United States knows little or nothing of the real conditions in drug addiction, most of us basing our opinion on the say so of some one whom we regard rightly or wrongly as an authority. It is to be hoped, therefore, that an investigation such as is proposed by Representative Volk can be undertaken and conducted so impartially and be so guided by scientific principles that its conclusions will force themselves for acceptance upon the mind of the profession. It is only so that the question can ever be definitely settled and justice be done to the suffering addict.

INFLAMMATION OF THE OMENTUM.

FROM a study of the epiploitides it becomes clear that three categories exist, namely, the hernial, abdominal, and hernioabdominal. Hernial epiploitis is the better known of the three. To abdominal epiploitides belong postoperative inflammation and inflammation by direct extension, and in particular those following the radical cure of hernia. As to the third category, to which the term hernioabdominal has been given, it comprises those cases in which the omentum is inflamed in both its hernial and extrahernial portion, the lesions often very distinctly predominating in the latter portion. Generally speaking, epiploitis may be regarded as a phlegmonous infiltration, affecting—according to the case—the following forms: (*a*) Congestive infiltration; (*b*) suppuration; (*c*) sloughing; (*d*) fibrous, or fibrofatty infiltration—chronic phlegmon. These forms are almost always accompanied by adhesions. These adhesions play a prominent part in epiploitis, whether associated with phlegmonous lesions or constituting the lesion themselves. They either result from infection or are caused by manipulation or rubbing, which injures the endothelium of the oventum and peritoneum with which it is in contact. Infection is the great factor of epiploitis. It may be endogenous—hernial, or hernioabdominal epiploitis, or exogenous—postoperative. In the latter case the ligatures are unquestionably the

cause of the infection, and this may also arise from contact of the omentum with an infected organ—appendix, ovary, etc.

The symptoms of epiploitis are not very distinct, and the diagnosis is easy only in the hernial type. In abdominal epiploitis the symptoms may resemble those of some other process, such as localized peritonitis, appendicitis, or inflammation of the adnexa, or while in epiploitis from direct extension they become blended with those of the concomitant affection. At any rate, the appearance of a more or less large tumefaction, with rapid development, will lead to a suspicion of the probable lesion; and when under the abdominal parietes a rather thick pedicle in continuity with an inflamed epiplocele is felt a diagnosis of probable hernioabdominal epiplotis may be made.

The evolution of epiploitis following the radical cure of hernia may be divided into three phases of variable duration and intensity: (1) Phase of gastrointestinal disturbances; (2) peritoneal disturbances and appearance of a tumefaction; this tumefaction is sometimes very considerable and seems to belong to epiploitis following ligature of the omentum; and (3) the terminal phase, ending in resolution, suppuration, or fibrous organization. Omental adhesions are of considerable clinical importance. They are useful when they result in walling off pus collections, but more often they are dangerous in that they produce phenomena of occlusion, visceral ptoses, pain, etc. They may sometimes keep up latent foci of infection, whose awakening, on account of the accidents ensuing, may lead one to suspect a return of the affection giving rise to them; and finally, they may seriously complicate the operation. Among the complications to which epiploitis gives rise should be mentioned torsion of the omentum in cases of hernia; while sinuses may result from suppurating abdominal epiploitis.

The prognosis of omental inflammation is in general favorable, but depends largely upon the acumen of the surgeon who correctly interprets the clinical signs and decides upon an opportune operation.

The surgical treatment consists of resection of the omentum in the midst of healthy tissue and reunion by a chain catgut and suture. In cases of abdominal epiploitis, the treatment will vary according to the conditions present—movable or fixed tumefaction, a purulent collection, adhesions, etc. When free and movable the diseased portion of the omentum is to be excised, but when the tumefaction is extensive, solidly fixed, and contains a pus pocket, this latter should be incised and drained. Simple incision of the tumefaction has been known to give good results even when no pus was present. The accidents set up by adhesions require laparotomy, division of the adhesions, and freeing the viscera. When the adhesions protect the abdominal cavity they are to be carefully respected. A later operation may be necessary if they give rise to gastrointestinal disturbances of a mechanical natur

ARTERIOSCLEROSIS AS A DEFENSE REACTION.

IN Humphrey's study of very old, healthy individuals it is stated that the arteries were usually soft. In such cases there is evidently no demand for any defensive reaction on the part of the organism. In healthy old prostatics with arteriosclerosis and high blood pressure, such as often figure in case histories, the hardening of the arteries suggests a defensive mechanism. We are therefore able to visualize two different types of healthy old age in which the first seems decidedly rare and freakish while the second is common and readily intelligible. But while the usual claim is that the arteries thicken to adapt themselves to increased blood tension, there is also the opinion expressed that the increased tension itself is a defense reaction due in part to the progressive loss of arterial resiliency. This view is mentioned by Micheleau in the *Gazette hebdomadaire des sciences médicales de Bordeaux* for November 13, 1922, xlii, 46. The author was associated with Picot, who in his time was an associate of Trousseau, and the clinical traditions which have descended to him cause him to reject all attempts to apply mathematical formulæ to the sick man. In other words, he avoids placing too much trust in an instrument like the oscillometer and blood-pressure apparatus in general. The practitioner insists on an explanation for high tension in the given case; perhaps he is apt to ask why should a man continue to live and enjoy life with a disgracefully high pressure? The author of this article says he has a friend whose measurement for some years has been from 260 to 280 mm. of Hg. The man is 64 years of age and his health is apparently perfect despite the sword suspended above his head.

Since it is a necessity for a certain amount of blood to reach all important organs to insure their nutrition and functional efficiency, especially in the case of the digestive apparatus and the eliminative organs, it seems inevitable that with advancing years and deterioration of machinery the blood must be pumped more vigorously through the circulation, which in turn necessitates a strengthening of the vascular walls. The hypertension in surgical and sthenic fevers is conservative, and when increase of blood pressure is motivated by the presence of toxins in the blood it seems evident that Nature is seeking to expel the latter through the emunctory organs. Owing to the great number of toxic principles which the subject must eliminate the largest fraction of cases of arteriosclerosis is best explained on this hypothesis. The defense of the organism against bacteria is a matter of leucocytosis and diapedesis, which latter also demands an increase in the force of the circulation. On the other hand, hypotension, or a diminution in the force of the circulation, does not appear to serve any useful purpose, and usually, indeed, indicates that the organism is no longer able to defend itself.

THE NEGLECT OF CYNOTHERAPY.

THE subject of the extremes of medical specialism has long since been exhausted as a source of facetious comment. Looking at it from one angle, we find a limitation of interest to such circumscribed regions of the body that weighty tomes appear upon diseases of the umbilicus; from another viewpoint we find a single system of therapy claiming its exclusive votaries, as witness the hydrotherapeutists. May we then register a protest at the neglect of an important branch of therapy? We refer, of course, to cynotherapy.

Our medical ancestors recognized and were not slow to recommend this therapeutic agent. Thus Hippocrates suggests dog meat as a remedy for tuberculosis. It appears, too, from a casual glance at a medical treatise by Qâdi Abu Ali at-Tanukhi, of the tenth century, that he was not unfamiliar with its virtues. He reports a case where broth made from the flesh was administered to a boy who was suffering from intolerable gastric pain. The actual ingestion had no effect, but when the boy was told what he had taken, the resultant emesis revealed a cattle-tick which had fastened itself to the gastric mucosa and was causing the pain. All of the early pharmacopeias mention this therapeutic agent, the French one of Nicolas Lemery in 1697 describing an oil, a liniment, and an ointment. Some of these are still in use to-day, particularly in the rural districts, where the oil has a steady sale as a sovereign remedy for rheumatism.

We might call attention to another branch of this therapeutic method which has also enjoyed the esteem of the laity for many centuries and which, being dependent upon external application, might well be termed cynoglossotherapy. Cynoglossotherapy was popularly supposed to have a particularly favorable effect in cutaneous disorders, and there are not wanting testimonials recording the cure of several members of a family of such a disease as scabies by this means.

Then, too, the psychic effects produced by the judicious use of cynotherapy must not be overlooked. In depressions of various sorts, those due to financial reverses or those domestic problems which intrigue the psychoanalyst, cynotherapy not infrequently succeeds in raising the morale of the patient and by providing an atmosphere of loyalty and devotion tends to distract his mind from his difficulties. Let us then not neglect cynotherapy, especially in its last-named aspect, always remembering that the physician himself is sometimes the better for it, if not during his active practice, at least in his vacation time when its application is accompanied by outdoor rambles through fields and woods.

"WEICHSELBAUM'S DISEASE."

THE *Revista Medico-Chirurgica do Brazil* of Rio de Janeiro, founded by Carlos Seidl and edited by Carlos Seidl, Jr., contains in its October issue (xxix, 10) an account by Renzo of an epidemic at Rio of "Weichselbaum's disease," which ran its course in 1920. Evidently the author or some one before him has given this name to cerebrospinal meningitis because Weichselbaum happened to discover the meningococcus. This sort of christening, if followed out, would make of typhoid fever "Eberth's disease," of diphtheria "Löffler's disease," and so on. The autonomy of cerebrospinal fever has been recognized for considerably longer than a century—longer, in fact, than that of typhoid fever or diphtheria, for the latter disease did not receive its modern designation until the appearance of Bretonneau's monograph in 1826. Possibly the attempt to tag epidemic meningitis with Weichselbaum's name may be regarded in the light of supersubtle German propaganda, and if this be the case we may expect to see the French come back with "Bretonneau's disease" for diphtheria, "Laennec's disease" for peritonitis, or atrophic cirrhosis of the liver, and so on. If diseases are to be named for the discoverers of their specific causes syphilis will have to be renamed for Schaudinn, tuberculosis for Koch, leprosy for Hansen, and gonorrhea for Neisser. The tendency in question has cropped out before, when one author speaks of typhoid fever as "eberthian sepsis," and another of gonorrhea as a "neisserian infection." Dr. Renzo, however, anticipates criticism for his novel title, first by passing the buck to Dr. Garfield de Almeida, and second by the statement that since cerebrospinal meningitis is not necessarily epidemic the name in use is not suitable for characterizing the sporadic case. But no one ever thought of calling a sporadic case anything but sporadic cerebrospinal meningitis.

SIMULATION OF A NEOPLASM BY SYPHILITIC ORCHITIS.

IT is not often that a medical writer goes back forty years for an illustrative case, save perhaps an an indication of the medical teaching of the period. The simulation mentioned could hardly have been possible to-day. Nevertheless, Zeissl of Vienna (*Wiener klin. Wochenschrift*, Dec 1, 1921, xxxiv, 48) finds this old case of unusual teaching value. The patient, a young physician, had acquired two years before one of those very doubtful cases of syphilis which puzzle the medical advisers. Practically aside from a hard chancre there was no evidence of syphilis whatever—no cutaneous or mucous lesions, loss of hair, or disturbance of general health. A left hydrocele then suddenly developed, and after puncture no lesion of the testicle, epididymis, or cord could be palpated. At this juncture there developed a lymphnode enlargement in the left epitrochlear region the size of a pigeon's egg. The patient became panic-stricken, having made the diagnosis of carcinoma of the testicle with lymphnode metastases, and demanded semicastration and extirpation of the enlarged node. The author cut down on the testicle and evacuated a little pus, making also a biopsy of a piece of the gonad. The diagnosis of the pathologist was an inflammatory process of syphilitic nature. The testicle became normal and the operation wound healed under an inunction and iodide cure. The enlarged node subsided. There had been a slight rise of temperature and pain in the gonad, which also disappeared. The case is singular, therefore, for pain and fever seldom accompany syphilitic or-

chitis. The testicle may reach the size of a pear and the condition usually persists for months uninfluenced by treatment. Careful palpation shows that the enlargement is nodular. The author briefly outlines the differential diagnosis of gonorrheal epididymitis, syphilitic orchitis, tuberculosis, and cancer of the testicle.

News of the Week.

Influenza in Great Britain.—A large increase in the death rate in Great Britain during the first week in January is reported by the Registrar General to be due largely to influenza. In London the deaths from this cause were 354, as compared with 151 in the previous week. In 105 towns of England and Wales the deaths from influenza numbered 819.

Births and Marriages Decrease in France.—According to the report of the Ministry of Labor, marriages in France decreased about 30 per cent. during the last year. Whereas in 1920 there were 333,242 marriages, there were in 1921 only 238,185. Births showed a decrease of 3,483, but this was offset by a decrease of deaths of 8,400.

Tuberculosis in the United States.—The Department of Commerce announces that nearly 100,000 deaths were due to tuberculosis in the death registration area of the United States in 1920, and if the rest of the United States has as many deaths from this cause in proportion to the population, the total number of deaths from tuberculosis in the entire United States for 1920 was about 122,000 while, for 1919 the number is estimated as 132,000, or 10,000 more than for 1920. The tuberculosis death rate in the registration area in 1920 was 114.2 per 100,000 population against 125.6 per 100,000 population for the year 1919.

Smallpox Outbreak in Oklahoma Towns.—An epidemic of smallpox is reported from the towns of Poleau, Heavener and Wister, Okla. These towns have been isolated by barbed wire entanglements and are guarded by armed men. Compulsory vaccination is being enforced. To January 13, ten deaths from the disease had occurred in Poleau.

Appropriation to Fight Scarlet Fever in New York.—The Board of Estimate has granted the Health Commissioner an appropriation of $75,000 to employ additional physicians, nurses, and inspectors in connection with an unusual number of scarlet fever cases in the city and to take precautions against the possible recurrence of an epidemic of infantile paralysis, which usually runs in cycles of five or six years. In 1920 there were 6,885 cases of scarlet fever here, and 13,880 in 1921. A part of the appropriation will be spent for laboratory study of scarlet fever and infantile paralysis.

Extension of Prenatal Work.—The Maternity Center Association of New York City is cooperating with the Department of Health in extending its prenatal service in the Borough of Manhattan. The Association will furnish doctors and nurses to hold clinics for expectant mothers in certain Baby Health Stations maintained by the Department, and the doctors and nurses attached to the Baby Health Stations will cooperate in the maintenance of these prenatal clinics. As a sufficiently large appropriation to extend the prenatal service of the Bureau of Child Hygiene is not at present available, the Department of Health welcomes the cooperation of organizations who are working to reduce the maternal and early infant death rates by furnishing instruction to expectant mothers.

Males and Females.—A bill has been introduced into the New York Legislature forbidding a male doctor to treat a female except in the presence of another female. The bill was introduced by Mr. Male. It is one of the comic reliefs of the popular legislative meddling in medical matters.

Association of the Alumni of the College of Physicians and Surgeons.—The annual meeting of this Association will be held on Tuesday, January 24, 1922. Dinner will be served at 7 o'clock at the Faculty Club, Columbia University, Broadway and 116th Street. At 8.45 o'clock the executive session will be called to order at the Crocker Laboratory, 1145 Amsterdam Avenue, northeast corner of 116th Street. At 9 o'clock Professor Francis Carter Wood will demonstrate the new high voltage *x*-ray apparatus at the Crocker Laboratory and will talk on some of the recent developments in *x*-ray therapy. The secretary of the Association is Dr. William H. Woglom.

New York Medical Association.—The annual meeting of this association was held on January 12 at the Sherman Square Hotel. The business of the meeting consisted of a report of the work done by the association since its formation in 1919, the election of officers for the ensuing year, and the passage of resolutions on pending matters of legislation affecting the medical profession. Dr. Theodore Knapp Tuthill was elected President; Dr. S. Irwin Nelson, Vice-president, and Dr. John P. Davin, Executive Secretary. The Congressional investigation of the Narcotic Drug Situation as proposed by Representative Lester D. Volk was approved. The proposed suit by the New York Medical Association to test the constitutionality of the so-called Anti-Beer Bill was also approved. The bill introduced in the New York Legislature making it compulsory for a male physician to have a woman present while examining a woman patient was disapproved unless this bill should be amended so as to work also the other way round.

Address by Dr. Pirquet.—The stated meeting of the Section on Pediatrics of the New York Academy of Medicine of January 12 was held in conjunction with the New York Nutrition Council, the American Relief Administration, and the Health Service of the New York Chapter of the American Red Cross. Dr. Clemens Pirquet of Vienna delivered an address on his now familiar standards of child nutrition, which was illustrated with lantern slides showing how the American relief work was being conducted in Vienna.

Dr. B. P. Battalore, formerly connected with the Gulfport Naval Hospital, has resigned from the naval service and will practise medicine in New Orleans.

Dr. William Seaman Bainbridge, Commander M.C., U.S.N.R.F., has been decorated by the French

Government with the officer's cross of the Legion of Honor in recognition of his work with the allied armies at the various fronts and in the preparation of a "Report on the Medical and Surgical Developments of the War."

Dr. A. G. Ireland, associate professor of hygiene and public health at the University of Kentucky, has been appointed to the position of state supervisor of physical education and health by the Connecticut State Board of Education.

Dr. W. O. Bullock has been reelected president of the Board of Health of Lexington, Ky.

Dr. George H. Reichers has been elected president of the governing board and president of the staff of the Bushwick Hospital, Brooklyn, N. Y.

Dr. Maurice J. Lewi was the guest of honor at a dinner given at the Hotel Astor on January 14, by his fellow workers in the New York Heath Department. The Health Commissioner was toastmaster.

Colonel George E. Bushnell, M.C., U. S.A., Retired, who is to be in charge of the new military unit in Harvard Medical School, has been appointed Professor of Military Science and Tactics.

Dr. William J. Robinson and Dr. Martin Rehling were reelected President and Secretary respectively of the Medical Board of the Bronx Hospital at its annual meeting held Jan. 12, 1922.

Dr. Julius O. Cobb, surgeon in command of Fox Hill Hospital, Staten Island, and the Polyclinic Hospital, Manhattan, has been transferred to Boston to take charge of the United States Marine Hospital there.

A Medical History Society.—An International Society of the History of Medicine has just been established, according to a Paris newspaper, growing out of conventions held at Antwerp in 1920 and at Paris in 1921. The officers are: President, Dr. Tricot Royer, Antwerp; Vice-presidents, Professors Giordano of Venice, Singer of Oxford, and Jeanselma and Ménétrier of Paris; Secretary-General, Professor Laignel-Lavastine of Paris. A convention will be held at London in July, 1922, under the chairmanship of Professor Singer.

Positions for Specialists in Child Hygiene. — The United States Civil Service Commission announces an open competitive examination for specialists in child hygiene, to fill vacancies in the Children's Bureau, Department of Labor, Washington, D. C., at $2,400 to $4,000 a year, and vacancies in positions requiring similar qualifications. Applicants should apply for Form 2118, stating the character of the examination desired to the Civil Service Commission, Washington, D. C., or to the secretary of the local board of civil service examiners at the post office or custom house in any city. The receipt of applications closes February 14, 1922.

Automobile Deaths in 1921.—At a joint meeting of the officers of the Public Safety Section of the National Safety Council and the managers of various local safety councils, held in Chicago January 13, it was estimated that the number of persons killed in automobile accidents in the United States in 1921 was between 12,000 and 15,000, probably nearer the higher figure. This is an increase of from 1000 to 4000 over deaths from automobile accidents in 1920, when approximately 11,000 persons were killed. Based on the higher figure, safety officials to-day said that death from an automobile accident in 1921 occurred on an average of every thirty-five minutes.

Hospital Notes. — Plans for establishing a $500,000 hospital in Newark for the exclusive treatment of cripples, under the supervision of Dr. Adolf Lorenz, are being considered by city officials and members of the medical profession as the result of a pledge made by one of the city's foremost citizens to donate $100,000 and real estate valued at $50,000 for the project. The philanthropist, whose name is withheld, has made the offer on condition that if the institution is established it shall bear his family name.

The Seaside Home for Crippled Children at Far Rockaway, N. Y., recently celebrated its tenth anniversary at a meeting in the Biltmore Hotel, New York. Addresses were made by Lieutenant Governor Jeremiah Wood and Dr. Virgil P. Gibney.

The American Legion Weekly announces that the American Legion posts of Minnesota expect to erect a $200,000 hospital for the treatment of soldiers of the World War, and that Drs. William and Charles Mayo will cooperate in the work of the institution. Patients will be charged fees according to their ability to pay, as determined by the Legion officials.

Plans are being worked out for the erection of two new wings to the Mercy Hospital at Oshkosh, Wis., at a cost of about $300,000. Work will probably be begun in the spring and when the building is completed it will be used as a general hospital instead of simply as a maternity hospital as heretofore.

The Hudson City (N. Y.) Hospital has been fully completed and was formally opened on December 30, 1921.

Physicians' and Surgeons' Hospital Board of Kansas City, Mo., plan to erect a new hospital building to replace the one now operating at Eleventh and Harrison Streets. An effort will be made to conduct the new institution on the "open staff" method.

Mayor Couzens of Detroit has given $1,000,000 for the purpose of consolidating the Children's Free Hospital and the Michigan Hospital at Framington to provide additional facilities for the treatment of crippled children in Michigan. Additional contributions to the amount of $5,000,000 will be made as fast as the money is needed for the development of the joint hospital.

An Inquiry Regarding the Latest Interpretation of the Harrison Law.—Representative Volk of New York has introduced the following resolution, calling for facts in the possession of the Secretary of the Treasury regarding the authority for certain restrictions on medical practice promulgated recently by the prohibition commissioner:

Resolved, That the Secretary of the Treasury be, and he is hereby, authorized to transmit to the House of Representatives the facts in his possession on which, under date of October 19, 1921, R. A. Haynes, prohibition commissioner, did cause to be set forth and publish a ruling or regulation outlining treatment of "narcotic drug addiction" permissible under the Harrison law, and under section b of the aforesaid rules and regulations entitled "The ordinary addict," stated: "It is well established that the ordinary case of addiction yields to proper treatment and that addicts will remain

permanently cured when drug taking is stopped and they are otherwise physically restored to health and strengthened in will power. This bureau has never sanctioned or approved the so-called reductive ambulatory treatment of addiction, however, for the reason that where the addict controls the dosage, he will not be benefited or cured. Medical authorities agree that the treatment of addiction with the view to effecting a cure, which makes no provision for confinement while the drug is being withdrawn, is a failure, except in a relatively small number of cases where the addict is possessed of a much greater degree of will power than that of the ordinary addict. The good faith of the physician and the bona fides of his treatment in a given case will be established by the facts and circumstances of the case and the consensus of medical opinion in regard thereto, based on the experience of the medical profession in cases of a similar nature.

"The following resolution passed by the Council on Health and Public Education of the American Medical Association, at the meeting on November 11, 1920, is pertinent in determining the period over which narcotic treatment should be extended in purely addiction cases: '*Be it resolved*, That the Council on Health and Public Education of the American Medical Association indorse the principle expressed in the California law (section 8½), which forbids the use of opium and its derivatives in the withdrawal treatment of those addicted to the use of these drugs for a period of more than thirty days after the commencement of the withdrawal treatment.'

"This bureau cannot under any circumstances sanction the treatment of mere addiction where the drugs are placed in the addict's possession, nor can it sanction the use of narcotics to cover a period in excess of thirty days, when personally administered by a physician to a patient neither in a proper institution nor unconfined. If a physician, pursuant to the so-called reductive ambulatory treatment, places narcotic drugs in the possession of the addict who is not confined, such action will be regarded as showing lack of good faith in the treatment of the addiction, and that the drugs were furnished to satisfy the cravings of the addict. Doubtful cases, or those not falling within any of the above instructions, upon request will be investigated and special instructions, based upon the recommendations of the inspecting officers, will be issued."

Resolved further, That the Secretary of the Treasury is also hereby directed to inform the House as to the facts (1) on which a curb is placed upon the professional judgment of the doctor treating addiction, (2) which necessitate the direction of medication by the prohibition commissioner or his inspectors, (3) which show the qualifications of the prohibition commissioner or his inspectors charged with this work to pass upon medical treatment of narcotic drug addiction; their association with or knowledge of addiction treatment; or their qualifications as either physicians, dentists, or veterinarians, or their training in the science of medicine or its branches, such as therapeutics, pathology, or as laboratory specialists, blood analysts, clinicians, or as general practitioners, which would enable them to qualify to pass judgment upon cases of narcotic addiction or issue special instructions with regard to the treatment thereof.

Resolved further, That the Secretary of the Treasury is also hereby directed to inform the House as to the facts concerning the existence of any statute under and by virtue of which the Secretary of the Treasury, or, through him, the Federal Prohibition Commissioner by rules and regulations, is empowered to set aside known facts in medical science and curb the legitimate practice of medicine; and to nullify an Act of Congress, to wit, the Harrison narcotic law, passed in 1914, and which as revised and amended sets forth in section 1, as follows: "That the provisions of this paragraph shall not apply . . . to the dispensing, or administration, or giving away of any of the aforementioned drugs (opium derivatives) to a patient by a registered physician, dentist, veterinarian, or other practitioner in the course of his professional practice, and where said drugs are dispensed or administered to the patient for legitimate medical purposes, and the record kept as required by this Act of the drugs so dispensed, administered, or given away."

Resolved further, That the Secretary of the Treasury is also hereby directed to inform the House as to the facts which necessitate denying to the narcotic addict the advice and treatment of his family physician, and which under the rules and regulations as issued seek to force him to accept the treatment provided by penal institutions, private sanitariums, and quack "drug-cure" proprietors.

Resolved further, That the Secretary of the Treasury is also hereby directed to correlate and inform the House the facts or addenda covering the following interrogations: (1) The names or name of the official of the Internal Revenue Department writing section b of the regulations promulgated October 19, 1921. (2) The qualifications of this person or persons to pass upon the medical treatment or narcotic drug addiction, his association with and knowledge of addiction treatment. (3) The name or names of the Council on Health and Public Education of the American Medical Association adopting the resolution prescribing thirty days as the length of time which shall not be exceeded in treating addiction by the administration of narcotics. (4) The status of that resolution in the main body of the American Medical Association setting forth the adoption or rejection of the aforesaid resolution by the American Medical Association in convention assembled. (5) The medical authorities upon which reliance is placed for the quoted statement in paragraph 2, section b, of the rules and regulations. (6) Any and all additional facts relating to the rules and regulations, together with any information bearing upon the subject matter of this resolution.

Campaign for Law Requiring National License to Practise Medicine.—A movement to have Congress pass a law requiring all graduates in medicine to take out a national license to avoid the complex requirements of the different States and to facilitate medical practice was inaugurated at a meeting of the officials and counsellors of the American College of Physicians held in Philadelphia on December 30, 1921. Dr. Ellsworth Smith of St. Louis presided at the meeting. Dr. Clement R. Jones of Pittsburgh, who detailed the disadvantages of the present system, suggested that licenses be taken out through a national department of health or other Federal division.

Gifts and Bequests.—By the will of the late Frank Bringhurst of Philadelphia bequests are made as follows: Children's Seashore Home at Atlantic City and the North American Sanitarium at Atlantic City, each $10,000; Home for Incurables, Lankenau Hospital and Episcopal Hospital, each $5,000; Germantown Hospital, $1,000.

By the will of the late Ernest L. Tustin of Philadelphia one-quarter of the residue of an estate of about $500,000 is bequeathed to Hahenamann Hospital and Medical College of Pennsylvania for the purpose of supporting beds in the name of Ernest L. and Ellen W. Tustin for the benefit of poor and destitute children.

A legacy of $5000 is bequeathed to St. Joseph's Hospital, Philadelphia, by the will of the late Catherine Buckbee, for the endowment of a free bed in memory of her mother, Catherine Riley.

George P. Mellick and John H. Stevens have each made a donation of $25,000 to the Muhlenberg Hospital at Plainfield, N. J., for the construction of an extension to the Nurses' Home.

Medical Society Elections.—THE BASTROP COUNTY MEDICAL SOCIETY, at its regular meeting held in Bastrop, Texas, Dec. 15, 1921, elected as officers for the ensuing year: *President*, Dr. W. E. Campbell, Elgin; *Vice-President*, Dr. P. Chapman, Smithville; *Secretary and Treasurer*, Dr. I. J. Dawson.

THE PALM BEACH MEDICAL SOCIETY, at its regular meeting held at West Palm Beach, Fla., Dec. 13, 1921, elected the following officers for the ensuing years: *President*, Dr. R. O. Cooley; *Vice-President*, Dr. C. M. Conkling; *Secretary and Treasurer*, Dr. Grace Papot, Lake Worth.

THE SONOMA COUNTY MEDICAL SOCIETY, at its regular meeting held in Healdsburg, Cal., Dec. 15, 1921, elected the following officers for the ensuing year: *President*, Dr. L. J. Wilson, Sebastopol; *Vice-President*, Dr. H. S. Rogers, Petaluma; *Secretary*, Dr. L. W. Juell, Santa Rosa; *Treasurer*, Dr. W. C. Shipley, Cloverdale.

THE SOUTHSIDE MEDICAL SOCIETY, at its regular meeting held in Petersburg, Va., Dec. 20, 1921, elected the following officers for the ensuing year: *President*, Dr. T. M. Raines, Wakefield; *Vice-President*, Dr. W. C. Harmon, Dolphin; *Second Vice-President*, Dr. W. C. Powell, Petersburg; *Third Vice-President*, Dr. W. T. Gay, Suffolk; *Fourth Vice-President*, Dr. E. F. Reese, Courtland; *Secretary and Treasurer*, Dr. R. L. Ralford, Sedley.

THE MEDICAL SOCIETY OF THE COUNTY OF MONTGOMERY, at its regular meeting held in Amsterdam, N. Y., Dec. 15, elected the following officers for the ensuing year: *President*, Dr. R. R. Canna, Amsterdam; *Vice-President*, Dr. Harry H. Howard, Minaville; *Secretary*, Dr. W. R. Pierce, Amsterdam; *Treasurer*, Dr. C. F. Timmerman, Amsterdam.

THE SYRACUSE ACADEMY OF MEDICINE, at its annual meeting held Dec. 20, 1921, elected the following officers for the ensuing year: *President*, Dr. Charles Post; *Vice-President*, Dr. Edward Reifenstein; *Secretary*, Dr. C. J. Geiger; *Treasurer*, Dr. C. W. Blodgett.

THE DINWIDDIE COUNTY MEDICAL SOCIETY, at its annual meeting held in Petersburg, Dec. 15, 1921, elected the following officers for the ensuing year: *President*, Dr. R. A. Martin; *Vice-President*, Dr. E. W. Perkins; *Secretary-Treasurer*, Dr. William C. Powell.

THE FRANKLIN COUNTY MEDICAL SOCIETY, at its annual meeting held in Ozark, Ark., Dec. 15, 1921, elected the following officers for the ensuing year: *President*, Dr. A. J. Hansberry; *Vice-President*, Dr. E. W. Black; *Secretary*, Dr. Thomas Douglass.

THE SANDUSKY COUNTY MEDICAL SOCIETY, at its annual meeting held in Freemont, Ohio, Dec. 24, 1921, elected the following officers for the ensuing year: *President*, Dr. M. O. Phillips; *Vice-President*, Dr. R. D. Reynolds, Greenspring; *Treasurer*, Dr. W. H. Booth; *Secretary*, Dr. C. I. Kuntz.

THE MEDICAL SOCIETY OF THE COUNTY OF ERIE, at its annual meeting held in Buffalo, N. Y., Dec. 20, 1921, elected the following officers for the ensuing year: *President*, Dr. Dewitt H. Sherman; *Vice-President*, Dr. Thomas J. Walsh; *Second Vice-President*, Dr. Edgar R. McGuire; *Secretary*, Dr. Franklin C. Gram; *Treasurer*, Dr. Albert T. Lytle; *Censors*, Dr. John D. Bonnar, Dr. Charles W. Bethune, Dr. Archibald D. Carpenter, Dr. Francis E. Fronczak, Dr. Frank A. Valente.

THE CALHOUN COUNTY MEDICAL SOCIETY, at its annual meeting held in Battle Creek, Mich., Dec. 6, 1921, elected the following officers for the ensuing year: *President*, Dr. M. A. Mortensen; *Vice-President*, Dr. Thomas Zelinsky; *Secretary-Treasurer*, Dr. Wilfred Haughey.

THE ALBANY COUNTY MEDICAL SOCIETY, at its annual meeting held in Albany, N. Y., Dec. 7, 1921, elected the following officers for the ensuing year: *President*, Dr. T. W. Jenkins; *Vice-President*, Dr. Nelson F. Fromm; *Secretary*, Dr. Emmanuel M. Freund; *Treasurer*, Dr. John E. Heslin.

THE HERKIMER COUNTY MEDICAL SOCIETY, at its annual meeting held in Herkimer, N. Y., Dec. 6, 1921, elected the following officers for the ensuing year: *President*, Dr. Harry W. Vickers; *First Vice-President*, Morris H. Newton; *Second Vice-President*, Herbert T. Crough; *Third Vice-President*, Fred M. Barney; *Secretary*, A. Walter Suiter; *Treasurer*, George Graves.

THE MEDICAL ASSOCIATION OF THE SOUTHWEST, at its annual meeting held in Kansas City, Mo., Oct. 24-28, 1921, elected the following officers for the ensuing year: *President*, Dr. St. Cloud Cooper, Ft. Smith, Ark.; *Vice-Presidents*, Dr. G. Wilse Robinson, Kansas City; Dr. A. F. O'Donnell, Ellsworth, Kan.; Dr. C. R. Day, Oklahoma City, and Dr. T. C. Terrell, Fort Worth.

THE MISSOURI VALLEY MEDICAL SOCIETY, which held its annual meeting in conjunction with the Medical Association of the Southwest at Kansas City, Mo., Oct. 24-28, 1921, elected the following officers for the ensuing year: *President*, Dr. Paul E. Gardner, New Hampton, Ia.; *First Vice-President*, Dr. H. J. Lehnhoff, Lincoln, Neb.; *Second Vice-President*, Dr. Austin McMichael, Rockport, Mo.; *Treasurer*, Dr. O. C. Gebhart, St. Joseph, Mo. (re-elected); *Secretary*, Dr. Charles Wood Fassett, Kansas City, Mo. (re-elected).

THE MID-WEST ASSOCIATION OF ANESTHETISTS, at its annual meeting held in Kansas City, Mo., Oct. 24-28, 1921, elected the following officers for the ensuing year: *President*, Dr. David E. Hoag, Pueblo, Colo.; *First Vice-President*, Dr. B. H. Harms, Omaha, Neb.; *Second Vice-President*, Dr. Winnie M. Sanger, Oklahoma City; *Secretary*, Dr. Morris H. Clark, Kansas City.

THE MAUMEE (TOLEDO) MEDICAL SOCIETY, at its annual meeting held Dec. 8, 1921, elected the following officers for the ensuing year: *President*, Dr. J. D. Ely; *Vice-President*, Dr. Sara Davies; *Secretary*, Dr. James C. Price; *Treasurer*, Dr. George Beyer.

THE AMERICAN SOCIAL HYGIENE ASSOCIATION, at its eighth annual meeting held in New York City, Nov. 18, 1921, elected the following officers for the ensuing year: *President*, Dr. Hermann M. Biggs, State Health Commissioner of New York; *Vice-Presidents*, Dr. William S. Keller, Cincinnati, and Dr. John H. Stokes, Rochester, Minn.

THE SULLIVAN, CARTER AND JOHNSON COUNTIES (VA.) MEDICAL SOCIETY, at its meeting held in Bristol, Dec. 3, 1921, elected the following officers for the ensuing year: *President*, Dr. J. O. Woods, Elizabethton; *Vice-Presidents*, Dr. B. A. Swift, Mountain City; Dr. C. C. Hacker, Elizabethton; Dr. W. R. Booher, Bristol; *Secretary and Treasurer*, Dr. W. K. Vance, Jr.

THE NEW YORK STATE SOCIETY OF INDUSTRIAL MEDICINE, at its first annual meeting held in Syracuse, Dec. 8, 1921, elected the following officers for the ensuing year: *President*, Dr. T. G. Smith, Schenectady; *First Vice-President*, Dr. C. H. Weston, New York City; *Second Vice-President*, Dr.

R. W. Chaffee, Syracuse; *Secretary*, Dr. Myer Bloom, Binghamton; *Treasurer*, Dr. S. M. Slater, Rochester.

Obituary Notes.—Dr. J. WILLIAM PANCOAST, a graduate of Pennsylvania University School of Medicine in 1892, died suddenly of heart disease at his home in Philadelphia on January 3, at the age of fifty-two years. He was a member of the American Medical Association and of the Medical Society of the County of Philadelphia.

Dr. HERBERT LEE CONSTABLE of New York, a graduate of New York University Medical College in 1889, died of heart disease on December 18, at the age of fifty-five years.

Dr. DAVID LAWRENCE SMITH died at his home in Spokane, Wash., on December 20, at the age of seventy-two years. He was graduated from the Central Medical College of St. Joseph, Mo., in 1892. At different times he was both city health officer and coroner.

Dr. JULIA T. H. CRAWFORD of York, Pa., a graduate of Hahnemann Medical College and Hospital, Chicago, in 1884, and of the Women's Medical College of Baltimore in 1886, died in a Los Angeles hospital on December 24, at the age of sixty years.

Dr. FREDERICK H. DAVIS of Darby, N. J., a graduate of Jefferson Medical College in 1891, died on December 21, at the age of fifty-six years.

Dr. HARRY HALE FORD of Elmira, N. Y., a graduate of Bowdoin Medical College in 1884, died on December 25, at the age of fifty-eight years. He was a member of the American Medical Association and of the Medical Society of the State of New York, and for more than twenty years consulting physician of the Pennsylvania Railroad for his district.

Dr. OSCAR G. OLSON of Chicago, a graduate of the Kentucky School of Medicine in 1893, died of angina pectoris at his home in Chicago on December 26, at the age of fifty-seven years.

Dr. SAMUEL C. FALLS, a graduate of the Medico-Chirurgical College, Philadelphia, in 1893, died suddenly at his home in Philadelphia on December 26, at the age of fifty years. He served in the Medical Corps of the Army during the war with the rank of major.

Dr. THOMAS J. WHITNEY of Frewsburg, N. Y., a graduate of the University of Buffalo Medical College in 1865, and a Civil War veteran, died on December 24, at the age of seventy-nine years.

Service Bureau.

Regular subscribers to the MEDICAL RECORD who desire information on any professional matter are invited to send their inquiries to the office of publication. Replies will be sent by mail as promptly as possible. Questions and answers of general interest may be published from time to time. When abstracts of articles from other journals are furnished the cost of typewriting will be charged.

Purchases will be made of articles of any description wanted by subscribers; a check sufficient to cover the cost should be sent with the order.

Subscribers visiting New York are welcome to use the office, 51 Fifth Avenue, as a temporary address for receiving and forwarding mail, telegrams, or small packages.

Correspondence.

A CALL FOR REFORM IN THE AMERICAN MEDICAL ASSOCIATION.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—As the fate of the Practice of Medicine is at stake, the following is being sent to every Medical Editor and County Medical Society in the United States. Kindly submit it to the readers of your journal for consideration and action.

F. H. McMECHAN, M.D.,
Secretary.

To Members of the Medical Profession: The public and professions are being sold out to (1) foundation control of "full time" medical education; (2) lay board domination and the "closed shop" hospital; (3) socialized State medicine, subsidized community health centers, and hospitals under political or university control; (4) legislative dictation of therapy and fees; (5) demoralization of medical standards by the expansion of cults; (6) exploitation of the specialties by lay technicians. These menacing movements will succeed unless they are combated by a powerful and united opposition. Your so called leaders are either openly fostering these destructive forces, or more subtly giving them full fling by a camouflaged neutrality.

The American Medical Association belongs to you and you are entitled to have it effectively protect your vital interests. Let your action on this nationwide referendum carry your mandate. In the present crisis it is up to every county society to instruct all delegates to the A. M. A. meeting at St. Louis, Mo., May 22-26, 1922, to vote for (a) a change of policy and leadership in the A. M. A. pledged to the immediate abolition of the evils mentioned, and constructive protection of medical interests; (b) the repeal of multiple representation and plural voting privilege by section delegates; (c) the election of trustees for a period of two years, five trustees to be elected one year and four the next, to prevent the trustees from perpetuating oligarchical rule. Unless there is a drastic change in the policy and leadership of the A. M. A. the public and profession at large will continue to be misled and misrepresented in the solution of the most pressing problems affecting public welfare and the practice of medicine.

The members of the scientific sections are already represented by the delegates of their respective State societies, and the voting of section delegates is multiple representation, and as such undemocratic and unfair. Unless this plural voting privilege is repealed, the fifteen section delegates will continue to negative and outvote the delegates of fifteen State societies having only one delegate each.

At present three of the nine A. M. A. trustees are elected each year for a period of three years. There is a proposal before the House of Delegates, introduced at the Boston meeting (1921), to reduce the number of trustees to seven and have the term of office seven years. Unless the proposed election of trustees for seven years is nipped in the bud, the A. M. A. will be relegated to "gang rule" for all time to come.

At the Boston meeting of the A. M. A. (1921), those representing the rank and file of the profession lacked only seven votes of being in control of the House of Delegates, and would have been able to initiate a policy of public and medical protection if they had not been outvoted by the section delegates. In this connection the following editorial note or warning is of pertinent interest:

..."For the benefit of the large number of State journals that exchange with us, we desire to call attention to the necessity of determining where the delegates to the A. M. A. stand on many questions of vital interest to the welfare of the medical profession at large. We have had examples of what some of the leaders in the profession would do to us if they have their way. It is time to know something about the attitude of those whom we send to represent us at the great parent organization, which supposedly represents the voice of a very large majority of the medical men in this country. The trouble of it is we sometimes are betrayed, and if necessary, in order to have our wishes respected, our delegates ought to go instructed."—*Jour. Indiana State Medical Society*, November, 1921.

This warning is all the more necessary since the board of trustees, at the Boston meeting (1921), reported that they had under consideration the advisability of the A. M. A. paying the expenses of the A. M. A. delegates. This simply means further subsidizing of the delegates to control their votes and to thwart the interests of the rank and file. Each State society that values representation by its own delegates must take action against this political maneuver.

This is your opportunity of putting your power of attorney into the keeping of only such delegates to the St. Louis meeting who will openly avow their stand on all vital matters, who will fight your battles, and to whom your interests will be a sacred trust. Self-protection is the first law of life. Act now!

MEDICAL ADVISORY COMMITTEE.

MERCURIAL TEST FOR SYPHILIS.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—Criticism without suggested improvement means ignorance or jealousy. But I do not intend to criticise, I simply want to commend Dr. Chester Titus Stone for bringing out some truths regarding a method that has probably done more damage than syphilis has ever dreamed of. How many individuals have been charged with syphilis; been slowly poisoned with arsenical preparations and even mercury, that have never had that disease? Although the conclusions of the Pan American Congress of Genito-Urinary men in Washington, D. C., in December, 1920, declared the Wassermann to be of practically no value, unless accompanied by clinical evidences, past or present, we yet find men having Wassermann tests taken for every pain or ache.

My personal experience with the Wassermann is in two cases. One an initial lesion, that had I waited a few days would have shown the true condition; the test was reported as positive. The second (I tried this just as an experiment) was the case of a woman whom I had had under treatment for from five to eight months. To be fair with the test, I did not give any mercury for two weeks previous to the test, nor did I allow her to touch alcoholic beverages. A report was returned as negative. Simply smiling, I continued her treatment for three years; occasionally a symptom would develop during this time. The woman was treated for three years with mercury; she is now perfectly well five years afterward.

I wish to offer a method that is as sure as any Wassermann, to me more so; one that any one can carry out in a few seconds, and positively prove in the course of two to four days. It is well known that mercury acts as a specific in syphilis, and it must be evident to any one who has used it, that if this disease is not present, the administration of the drug, even in the smallest dose, is invariably accompanied by the physiological symptoms of mercury. On the other hand, if syphilis is present, one can take doses that would kill an ordinary person free from the disease. The following briefly reported cases must show the truth of the above claim:

J. Y. Ulcer at frenum. Infection, if such, was very indefinite. there being three sexual contacts inside of four weeks. The blue halo, to the writer a positive point in the diagnosis of specific ulcer, was present, but no other evidences of the disease. One-eighth grain of mercury bichloride was given hypodermically (mercury bichloride, 5 gr., beta eucaine 2½ gr., water one ounce; 24 drops equals ¼ gr. mercury). Returning in 24 hours he complained of no bad symptoms whatever as a result of the injection. One-fourth grain was now given, with advice to return in 48 hours. The same report: no bad symptoms. The ulcer, which at the first visit was covered with a slimy grayish substance, now appeared red (new granulations) and epithelium was springing from all sides in an effort to close it over; this was complete in a week's time. There was no doubt of the diagnosis. About the sixth week he developed a few mucous patches and slight eruption.

T. K. Sent by the same patient with a similar sore, only slightly higher up. There being no blue halo, the condition was shown to a specialist on the skin who pronounced it as specific and advised treatment at once. One-eighth grain mercury bichloride was given hypodermically. In 48 hours he reported: "Three hours after the injection, cramps, diarrhea, spitting constantly, and slight tenderness of the teeth." This should have been sufficient, but in view of the opinion of the expert, a second injection of 1/6 grain was given. In 48 hours he reported: "Diarrhea with blood, severe cramps, mouth full of saliva constantly, runs all over the pillow at night; the gums were badly swollen." This was convincing that a mistake had been made, and the ulcer was cleansed with iodine water and dressed with iodoform. In a week he reported with sore practically closed over, and no other symptoms.

The writer has used this method scores of times, even where the infection was of years' standing; where syphilis is present, physiological symptoms never develop; where it is absent, always.

J. HENRY DOWD, M.D.

437 FRANKLIN STREET,
BUFFALO, N. Y.

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, January 3, 1922.

Medical Men in Parliament.—It is curious, to some extent, to observe the ignorance of the members of the medical profession in this country as to its representation in Parliament and also the proposed contempt the average medical man has for politics. He believes, if he thinks of the matter at all, that politics will effect nothing in his interests, that indeed they are antagonistic to his concerns, as, in fact, they usually seem to be. However, there is a medical group in the British House of Commons, small though it be and comparatively negligible as its influence is. The existing British Parliament contains eleven medical members whose names and politics are as follows: Dr. Addison, late Minister of Health, Liberal; Sir William Watson Cheyne, Unionist; Captain W. E. Elliott, Unionist; Dr. A. C. Farquarson, Liberal; Lieut.-Colonel F. E. Freemantle, Unionist; Dr. B. F. P. McDonald, Unionist; Dr. J. E. Molson, Unionist; Mr. Donald Murray, Liberal; Dr. Nathan Raw, Unionist; Sir William Whitla, Unionist; Sir Robert Woods, Independent. Although the medical party is almost impotent politically, it has formed the Medical Committee of the House of Commons which has rendered considerable service to the cause of public health. Some of the members of the medical party have shown themselves remarkably energetic as well as possessed of marked ability as speakers. Perhaps Captain Elliott may be termed the orator of the party, although Dr. Nathan Raw, Lieut.-Colonel Freemantle, and Dr. Murray have distinguished themselves in this direction on several occasions. The Parliamentary Committee is working in conjunction with the Federation of Medical and Al-

lied Societies through its secretary, who has a seat on the Medical Council. Moreover, all the medical members of Parliament, with one exception, also are individually members of the federation. The federation serves the committee in the House and outside the House. It does this by supporting all medical candidates for Parliament by canvassing all members of all the professions allied with the medical profession, and by providing the committee with the views of the medical and kindred societies on current health matters. But, of course, as said before, the number of medical men in Parliament is so small as to carry little if any weight, and it would be in the best interests of the profession and of the health of the country if there were enough medical men and women in Parliament, not only to represent adequately the opinion of the profession as regards health matters, but to look after and, if possible, safeguard their own interests. Unfortunately, the calls of medical practice are so exacting that there are not many who have the leisure and what is more to the point, the means to contest a parliamentary election, or if elected to support themselves. Unfortunately, too, in any event, the number of men in Parliament would not be sufficient to make their influence felt as it should be felt. Politicians, many of whom may be termed professional politicians, possess the power, and the medical profession must either sing to their tune or go unheeded. In no countries of the world is the medical profession so politically powerless as in this country and America.

British Medical Association.—The next annual meeting of this Association will be held in Glasgow in July. It is stated that the committees in charge of the various departments are now well under way, and the preparations for the coming meeting are already in a forward condition. A short time ago the Central Arrangements Committee held its first meeting in London, but the detailed discussion of the work and office-bearers of the scientific sections has been postponed until the next meeting. Among other arrangements made was the decision to publish a series of articles on Glasgow and neighborhood in the *British Medical Journal*, which will appear at monthly intervals. As a matter of fact, the first of this series appeared in the first number of December last.

Health Congress.—The Royal Institute of Public Health will hold a Congress in Plymouth from May 31 to June 5, 1922. In addition to conferences on various matters there will be four sections: (1) State Medicine and Municipal Hygiene; (2) Naval, Military, and Air; (3) Bacteriology and Bio-Chemistry; (4) Women and Public Health. The Harben Lectures will be given during the meeting by Dr. T. Madsen, director of the State Serum Institute, Copenhagen. A course of lectures on Tuberculosis and Public Health will be given in the lecture hall of the Institute on Wednesdays, January 11 to March 22, 1922, at 4 P. M.

Third International Congress of the History of Medicine.—At a general meeting held at the Royal Society of Medicine on December 21, 1921, the following were elected officers of the Congress: President of Honor, Sir Norman Moore; President, Dr. Charles Singer; Treasurer, Mr. W. G. Spencer; General Secretary, Dr. J. D. Rolleston; Vice-Presidents, Sir D'Arcy Power, Dr. Tricot-Reyer, Dr. E. Jeanselme, Dr. E. Menetrier.

Obituary.—Colonel Harry Littlewood, late Professor of Surgery in the University of Leeds, died suddenly on December 19 at Aylsham, Norfolk. He retired at the age of 53 to his native county, Norfolk. He was a good surgeon and an able teacher, respected by all and beloved by those who knew him intimately.

Dr. George Henry Darwin died in Manchester at the age of 69 on December 6, after an illness of a few weeks. Dr. Darwin's reputation will rest mainly on the good service he rendered to ambulance work and training. He was better versed probably in railway ambulance work than any man in the country and lectured in all parts of the country on this subject. During the war he served as medical officer to one of the branches of the Second Western General Hospital in Manchester.

Progress of Medical Science.

Boston Medical and Surgical Journal.

January 5, 1922, clxxxvi, 1.

1. Spinal Accessory Paralysis Following Neck Dissection. Frank H. Lehey and H. M. Clute.
2. Recurrent Renal Calculi. J. Dellinger Barney.
3. Experiences with the Use of Radium. George C. Wilkins.
4. The Practice of Medicine in Massachusetts. A Discussion of the Law Governing the Registration of Physicians. Benjamin Loring Young.

2. Recurrent Renal Calculi.—J. Dellinger Barney presents an analysis of 139 cases of kidney stone occurring in the genitourinary department of the Massachusetts General Hospital, of which 108 were men and only thirty-one women. Only eleven of these patients were past fifty years of age. One might almost say that renal stones were uncommon during childhood and old age. With present day diagnostic methods there should be little or no reason for operating on the appendix or some other organ when a renal stone is the real offender. Renal stone may be most insidious, and may acquire enormous size with practically no symptoms at all. In only 43 per cent. of the writer's cases was there any tenderness in or in the region of the stone-bearing kidney at the time of examination. Pus was the most frequent element in the urinary sediment, being found alone fifty-nine times and combined with blood forty-one times. More important is the fact that in twenty-six cases blood alone was found in the sediment, while in 8.6 per cent. of the cases the urine was persistently negative. This substantiates the observations of Cabot and Braasch. A positive *x*-ray was recorded in 125 cases, but it must be remembered that the roentgenogram will fail to show stones in from 6 to 11 per cent. of cases. In the examination of the *x*-ray film one must remember that superimposed stones may and frequently do give but one shadow, so that on this evidence alone no one can be sure of the exact number of stones present. While cystoscopy and catheterization of the ureter alone may be of little diagnostic value in renal calculus, at the same time it is a procedure which is essential in most instances. Expert interpretation of the *x*-ray plate is essential, for there are many shadows which resemble urinary calculi to the inexperienced eye, whereas the practiced observer will at once pronounce them to be phleboliths, calcified mesenteric glands, calcified costal cartilages or extraneous fecal material. Cystoscopy, with gentle manipulation, often brings about conditions favorable to the passage of calculi. The mortality in this series of cases was 3.5 per cent. It is doubtless true that conditions that produce stone are still active after operation, but it is also true that the operator did not remove all stones in a large num-

ber of cases. Of twenty cases in which an *x*-ray was taken during convalescence, nine, or 45 per cent., showed stones still remaining in the kidney. It is of vital importance that an *x*-ray be taken during convalescence, for one taken six months after operation cannot distinguish between a "left over" and a recurrence. It is also important that an *x*-ray be taken as close as possible to the time of operation, preferably the same day, the reason being that a stone may travel back and forth between the renal pelvis and the lower end of the ureter without producing symptoms. The old-fashioned method of needling a kidney, especially at the suspected location of the stone, is often helpful. In spite of the high percentage of recurrence the patient should not be encouraged to carry about with him a stone which is surely but insidiously doing damage to the kidney. In most instances a pyelotomy will suffice to remove the stone, and there is small risk attending this procedure. Even though nephrectomy is deemed necessary, the mortality is not terrifying, nor should the chance of secondary hemorrhage act as a deterrent.

New York Medical Journal.

January 4, 1922, cxv, 1.

1. The Relation of Medical Education to Medical Progress. Henry S. Pritchett.
2. The Recognition of Impaired Renal Function. George Morris Piersol.
3. Medicine's Duty Toward the Tuberculous Patient. F. M. Pottenger.
4. Early Diagnosis of Brain Tumor before Eye Symptoms Occur. Tom A. Williams.
5. The Unconscious in Spirit Communication and Symbolism. Knight Dunlap.
6. Environment and Trained Assistants as Factors in the Success of Cataract Extraction and Other Eye Operations. Edwin B. Miller.
7. Development and Problems of Modern Chemotherapy of Infectious Diseases. H. Schlossberger.
8. Enteroantigens in the Treatment of Noncontagious Chronic Disease. B. Sherwood Dunn.
9. Bacterial Vaccine Therapy. C. F. Kirkendall.
10. Anaphylactic Reaction After Blood Transfusion. Samuel A. Wolfe.
11. First Aid. S. Dana Hubbard.
12. The Tuberculin Treatment of Tuberculosis by the Nasal Insufflation Method. J. P. Israel.
13. A Practical Method of Increasing the Value of the Wassermann Report. Allen H. Bunce.

1. The Relation of Medical Education to Medical Progress.—Henry S. Pritchett. (See MEDICAL RECORD, Vol. 3, No. 23, p. 1003.)

2. The Recognition of Impaired Renal Function.—George Morris Piersol discusses those tests of renal efficiency which in his personal experience have proved to be of practical value and which may be readily employed in private practice and in the ordinarily well equipped hospital. One of the most useful tests of renal function is a study of the variations in the volume of urine and the specific gravity. In general the importance of this test is not appreciated. It is advisable to conduct these observations on an ambulant patient who is following a usual routine and taking an accustomed diet. Fixation of the specific gravity at too high or too low a level is strongly suggestive of impaired renal function and calls for further investigation. In patients who are on their accustomed diet, valuable data in reference to the suitability of their dietary can be obtained from the Mosenthal two hour test for urinary concentrations and volume, if the sodium chloride and nitrogen excretion is estimated. The estimation of the urinary nitrogen alone does not furnish information in regard to nitrogen retention; this can only be ascertained by estimating the blood uric acid, urea and creatinine. It seems established that the phthalein test is of little value in the early diagnosis of nephritis. In the acute forms of nephritis it is of doubtful significance both diagnostically and prognostically. The chief value of the test is found in the chronic nephritides. In these renal conditions, provided edema is not marked, it is of definite prognostic import and it also furnishes a valuable guide as to the effects of treatment. Provided extraneous causes of chloride retention are eliminated, we have in delayed or defective salt elimination a useful early index of renal impairment, more especially in the tubular varieties of nephritis. Since salt retention is found more especially in the tubular and parenchymatous types of nephritis, whereas delayed nitrogen excretion is more common in the glomerular forms of renal disease, these tests may be helpful or confirmatory in the diagnosis of the various types of renal disease. The earliest evidence of renal inefficiency, as shown by an increase in the nonprotein nitrogen elements of the blood, is an increased concentration of blood uric acid. The most generally valuable clinical and diagnostic measure of kidney function is the retention of blood urea nitrogen, and the functional test of gravest prognostic import is an accumulation of creatinine in the blood. Of less general application is the determination of the chlorides in the blood. In certain types of renal disease, more especially those associated with water retention and edema, the estimation of blood chlorides furnishes a valuable functional test. The chlorides are best estimated by the method of McLean and Van Slyke. The above mentioned tests by no means include all the functional tests advocated, but those that have been omitted have been discarded either because they have not been tested out sufficiently to demonstrate their value or because they have already proved too inaccurate or cumbersome for routine clinical use.

4. Early Diagnosis of Brain Tumor Before Eye Symptoms Occur. Differentiation from Encephalitis and from Hysteria and Emotivity.—Tom A. Williams points out that a hysteriform syndrome is a common initial manifestation of the presence of a new growth in the brain. The difficulty of the diagnosis is further complicated by the error perpetuated in textbooks that the alterations of the visual fields in these cases are stigmata of hysteria. Nowadays it is known that inversion of color fields or restriction of the form fields are indicative of physical damage and are not characteristic of hysterical patients who are properly examined. Another complication making the diagnosis difficult is arterial hypertension, for the signs found may then be attributed to arteriosclerotic lesions. It must be remembered, however, that hypertension may be secondary to disturbances of the vasomotor center. In both pellagra and encephalitis the focal signs associated with brain tumor may be conspicuous. In that case they may be difficult to distinguish, unless the patient is seen during the acute stage or a good history is obtained. However, it is unusual to find as intense impairment of function as would be caused by a neoplasm, nor would the signs be widespread unless there were also the classical symptoms of headache, vomiting and papilledema, along with modification of the visual field. If the clinical picture is not distinctive to an experienced neurologist, the progress of the case will enable a diagnosis to be made before the tumor is too large to intervene surgically. Hysteria should never be diagnosed by exclusion, but only after the discovery of the suggestion which has determined the hysterical behavior.

8. Enteroantigens in the Treatment of Noncontagious Chronic Disease.—B. Sherwood Dunn, believing that the origin of the chronic diseases of noncontagious character is found in the intestine, caused by albuminoids or microbic products obtained in the intestine which find entrance into the blood current through the congested and at times inflamed mucous membrane, which, acting as antigens, determine an anaphylactic condition of the organism, he has treated these diseases by the injection or ingestion of microbes taken from the intestinal flora. The mixture is composed of all varieties of microbes found in the intestinal contents. The quantity of microbes injected or ingested is governed by weight: one 1/1000 to 1/200 milligrams of microbes for the injection and one to five-tenths milligrams for ingestion. In all, some 352 cases have been treated, comprising dyspepsias, constipation, enteritis (mucomembranous), chronic appendicitis, sigmoiditis, urticaria, asthma, emphysema, rheumatism, dysmenorrhea, leucorrhea, mild chronic albuminuria, neurasthenia, melancholia, insomnia, migraines, tuberculosis of the skin, mucous membranes, testicle, kidney, glands and a few cases of the lungs. The most important conclusion drawn from these cases is that the enteroantigens produce a curative action without any noticeable harmful reaction. Enteroantigens possess an incontestable superiority over antigens of peptones, milk and serums employed in similar cases. From the theoretical standpoint Dunn suggests that the curative action of these enteroantigens is not specific, but is antianaphylactic; the action is not exercised directly upon the lesions, but

through the medium of the central nervous system and more particularly through the bulb, causing a stimulating action or correction of the functions of the glands. Of all known antigens the anteroantigens exercise the greatest elective action upon the central nervous system.

12. The Tuberculin Treatment of Tuberculosis by the Nasal Insufflation Method.—J. P. Israel has used the insufflation method, using powdered B. E. tuberculin and carrying out as nearly as possible the method of Paget (MEDICAL RERORD, vol. lxcv, p. 148, January 25, 1919). This method of treatment consists in insufflating one ten thousandth mg. tablet of tuberculin B. E. every other day, until six doses have been given, providing the patient does not show any marked reaction. The dose is then increased to one six thousandth mg., given every other day, until six doses have been administered. This method of administering tuberculin has great advantages over other methods and can easily be used by any physician. In most cases uniform results are produced. The period of treatment should extend over six to eight weeks at least. This, in the writer's opinion, is the method par excellence for the treatment of ocular tuberculosis.

Journal of the American Medical Association.

January 7, 1922, lxxviii, 1.

1. Faulty Food in Relation to Gastrointestinal Disorder. Robert McCarrison.
2. Gigantism with Hemorrhagic Osteomyelitis of a Metacarpal Bone. Maurice Packard and George Barrie.
3. Radium Technique in Treating Cancer of the Esophagus: Preliminary Report. C. W. Hanford.
4. Mongolian Idiocy in One of Twins. Stafford MacLean.
5. Transfusion Reactions and Citration with the Needle. Frank W. Hartman.
6. The Present-Day Sources of Common Salt in Relation to Health, and Especially to Iodine Scarcity and Goiter. Emery R. Hayhurst.
7. Simplification of Woodyatt Method for Calculating the Optimal Diabetic Diet. William H. Holmes.
8. Preoperative Treatment for Postoperative Comfort: Report of Synergistic Anesthesia. Samuel J. Glass, Jr., and H. Stanley Wallace.
9. Abdominal Migraine. William A. Brams.
10. Spontaneous Labor in a Case of Decentralized Uterus. Dan Collier Elkin.
11. The Cure of Infantile Rickets by Sunlight, Accompanied by an Increase in the Inorganic Phosphate of the Blood. Alfred F. Hess and Margaret B. Gutman.
12. Asynchronism of the Respiratory Movements in Lobar Pneumonia: Second Communication. Warren Coleman.
13. An Accurate Measure for Minimum Doses of Drugs. R. E. Cloud.
14. An Unusual Case of Kidney Infection. F. E. Irons.

1. Faulty Food in Relation to Gastrointestinal Disorder.—Robert McCarrison produces evidence to show that much of the gastrointestinal disorder of civilized people at the present day is due to faulty food. He compared the incidence of such disorder among civilized communities and its comparative absence among certain races living under more natural conditions, and contrasts in general terms the food habits of the former with those of the latter. For some years he has been engaged in a study of the effects of deficient and ill-balanced food on the various organs and tissues of the body, as observable in animals fed on such foods under experimental conditions. The foods used were those deficient in all three classes of vitamines, in suitable protein, in fats, and excessively rich in starch; foods deficient in vitamines B and C and excessively rich in starch and fats; foods deficient in vitamines A and B, but well balanced in other respects. The data afforded by specimens from the gastrointestinal tract of pigeons, guinea pigs and monkeys permits certain broad conclusions, namely: (1) The health of the gastrointestinal tract is dependent on an adequate provision of vitamines. The absence of growth vitamines is capable of producing pathological changes in the tract which frequently assume the clinical form of colitis. Deficiency of vitamine C is especially concerned in the production of congestive and hemorrhagic lesions in the tract, and evidence of these may be found in animals which have not exhibited during life any of the clinical manifestations of scurvy in noteworthy degree. (2) The disorder of the gastrointestinal tract, consequent on vitamine deficiency, is enhanced when the food is ill balanced. (3) The pathological processes resulting in this situation from deficient and ill-balanced foods are congestive, necrotic and inflammatory changes in the mucous membrane; degenerative changes in the neuromuscular mechanism of the tract; degenerative changes in the secretory elements of the tract; toxic absorption from the diseased bowel; impairment of the protective resources of the gastrointestinal mucosa against infecting agents. The use of faulty foods in human beings has a direct relation to such disorders as infantile diarrhea, jail dysentery and asylum dysentery, dyspepsia and gastric dilatation, gastric and duodenal ulcer, intussusception, colitis and failure of colonic function. No inconsiderable proportion of modern populations are existing on food supplies more or less deficient and ill balanced.

5. Transfusion Reactions and Citration with the Needle.—Frank W. Hartman holds that nonhemolytic transfusion reactions are largely due to incipient coagulative changes in the transfused lood. These changes are probably caused by injury to the platelets with the formation of thromboplastin and thrombin. To prevent injury to the platelets contact with foreign substances should be avoided as far as possible, and aeration and loss of body heat should be avoided. The anticoagulant should be added as the blood leaves the vein of the donor. The writer has devised a compact and easily manipulated apparatus which citrates the blood within the needle. By the employment of this apparatus he has reduced the number and severity of reactions 50 per cent.

6. The Present-Day Sources of Common Salt in Relation to Health, and Especially to Iodine Scarcity and Goiter.—Emery R. Hayhurst calls attention to the fact that authorities are agreed that goiter is infrequent in both animals and man along the sea. The sea is the great storehouse of iodine, where it completes a cycle from inorganic compounds to organic life and return. The great solubility of iodine accounts for its almost complete absence from the land surface and, perhaps, for some of the peculiarities noticed in regard to the incidence of goiter. While iodine may occur in natural deposits along with chlorine, usually in the form of the sodium salt, it is never obtained from such sources commercially. Common salt for dietary purposes should include not only sodium chloride, but also sodium iodide, and undoubtedly many of its other original concomitants. If it is not obtained from sea water, it should be handled commercially in a manner to retain these constituents.

9. Abdominal Migraine.—William A. Brams states that abdominal migraine occurs chiefly in those who suffer from typical head migraine or when there is a history of this disease in the family. The disease manifests itself by periodic attacks of epigastralgia with nausea and vomiting, and occasionally with diarrhea. Physical examination reveals no definite signs of any kind. The patient is free from all symptoms during the intervals between attacks. The attacks last a few days and begin and end rather abruptly. The disease is refractive to all treatment, but is favorably influenced by antimigraine therapy. In view of the frequent presence of disturbances in the female pelvis it is suggested that a course of ovarian extract be tried in these cases in addition to the regular arsenic and antimigraine measures.

10. Spontaneous Labor in a Case of Decentralized Uterus.—Dan Collier Elkin reports a case of cervical Pott's disease, with an almost complete transverse lesion of the seventh cervical segment, in which pregnancy went to full term, when normal and almost painless labor occurred. Attention is called to the fact that cases of this kind serve to place the uterus among the autonomic organs of the body and indicate that the initial stimulus to labor originates by some other mechanism than cerebral control.

11. The Cure of Infantile Rickets by Sunlight, Accompanied by an Increase in the Inorganic Phosphate in the Blood.—Alfred F. Hess and Margaret B. Gutman submit evidence which shows that sunlight not only brings about a clinical cure of the characteristic lesions of rickets, but also brings about an increase in the inorganic phosphate of the blood similar to that noted when the cure is accomplished by means of the specific cod liver oil. This observation is of interest both as additional testimony of the curative value of sunlight in this disorder, and as evidence that the curative process occasioned by these divergent therapeutic agents will prob-

ably be found to be fundamentally the same. These results furnish a chemical basis for the use of heliotherapy in rickets. Furthermore, they furnish the first definite evidence of metabolic change in the animal body brought about by the solar rays.

The Lancet.

December 17, 1921, cci, 5129.

1. The Origin of the Anginal Syndrome. Charlton Briscoe.
2. Spasmodic Respiratory Affections. J. Purves Stewart.
3. The Nose, Throat and Ear Requirements of Airman. David Ranken.
4. Alimentary Infections in Chronic Arthritis. N. Mutch.
5. The Problem of Chronic Suppuration of the Middle Ear, with Special Reference to Ionization. Arthur G. Wells.
6. The Normal Limit of Agglutination for *B. Dysenteriae* (Flexner) and the Sensitiveness of Suspensions. A. D. Gardner.
7. Cases of Infected Knee Joint Treated by Incision, Drainage and Movement. Philip Weatherbe.
8. A Case of Pyocele of the Frontal Sinus. J. A. Gibb.
9. A Case of Syringomyella. Sibbald Robertson.
10. Paraurethral Gonorrhea. F. Chamberlain.
11. A Fatal Case of Delayed Neosalvarsan Poisoning. D. R. C. Shepherd.

1. The Origin of the Anginal Syndrome.—Charlton Briscoe, in following up some of his work having to do with the mechanism of lung expansion and the action of the accessory muscles concerned in respiration, has come upon facts which seem to bear a definite relation to the origin of the anginal syndrome. Briefly, these facts are as follows: Overfatigued muscles give rise to referred pain in distant areas. The upper respiratory mechanism is excessively active under the same conditions in which attacks of angina pectoris occur, and stress of this nature affords a better explanation for nocturnal attacks than does cardiac strain. The respiratory muscles of this region, when hypersensitive, are the last structures in the segment to lose local tenderness and the faculty of producing referred pains by pressure. When these muscles are hypersensitive and subjected to pressure the areas to which pain is referred correspond to those similarly affected in angina pectoris, and are frequently recognized. The author has demonstrated a phenomenon which offers an explanation for the warning and sequence of pain in angina pectoris. This is dependent upon irritation of one of the expiratory muscles involved, and results in marked thoracic elevation. Treatment by alleviating the stress of these muscles has frequently—not always—been effective in relieving the pain *without* other treatment. Two attacks of angina pectoris have been observed as the result of irritation of the respiratory muscles. The phenomena generally which accompany an attack of angina pectoris can equally well be explained on a respiratory hypothesis as on one of vascular origin. It is of further significance that the age incidence of angina pectoris corresponds with that of ossification of the ribs and cartilages—a source of increased difficulty in respiration.

4. Alimentary Infections in Chronic Arthritis.—N. Mutch presents the results of observations made on 200 cases, half of which were hospital patients and the other half private patients. Gout, venereal or tuberculous disease of the joints, and all cases of nonarthritis were excluded, but otherwise no selection was exercised. He finds that the condition of the alimentary tract dominates the outlook in rheumatoid and osteoarthritis. The general scheme employed in the treatment of the present series of cases was as follows: The entire alimentary tract was surveyed carefully in each case and an estimate formed of the relative degrees of septic absorption occurring at the various levels. The more accessible areas of infection in the jaws, throat and intestines were treated surgically, and all the disorders of the digestive tract which had encouraged the development of chronic infection were dealt with. Autogenous vaccines proved of great value when used to supplement these measures. They were prepared from infective bacteria of all the principal zones of sepsis. Streptococci obtained from different foci in the same patient usually vary in their cultural characteristics, and each strain was included in the vaccine. Chronic infection frequently damages the thyroid gland. In the present series minor forms of subthyroidism were very common, while well defined myxedema or goiters of considerable size were seen in 14 per cent. of the cases. There is an intimate association between immunity reactions and the functions of the thyroid gland. The dry extract of the thyroid was given in all such cases with great benefit to the joints. In the present series of cases, which have been followed for varying periods up to nine years, 89 per cent. show very marked improvement or complete arrest. If it had been possible to exclude those cases in which circumstances such as age, temperament, and position in life prevented the full use of radical methods the results would have been still more encouraging.

5. The Problem of Chronic Suppuration of the Middle Ear, with Special Reference to Ionization.—Arthur G. Wells asserts that while ionization has been established as one of the most valuable and satisfactory means known for the treatment of chronic suppuration of the middle ear, the method has at present definite limitations. The indications for ionization in this disease, as observed in personal experience of some hundreds of cases, permits the following group to be described as unsuitable: (a) Cases which present large granulations and polypi in the tympanum; (b) cases where there is any disease of bone either of tympanum or mastoid; (c) cases where the antrum is diseased; (d) cases where there is disease of the Eustachian tube; (e) cases with any nasopharyngeal condition favoring reinfection of the ear; (f) cases where perforation in the membrane is so small that fluid cannot pass satisfactorily from the meatus into the tympanum. The cases suitable for ionization are those in which the ionizing fluid can reach the whole area of suppuration. The results of ionization in chronic suppuration of the middle ear in this series show a cure in about 60 per cent. of the cases. In some cases one ionization is sufficient; in others two and even three ionizations are needed. Besides being a valuable method of treatment, ionization is also in many cases an important aid in diagnosis. It frequently happens that in examining an ear, a little pus can be aspirated from the antrum or aditus; it is hard to say definitely whether the antrum is too far diseased to hope for a cure by ionization, and whether the proper treatment should not be a mastoid operation. Ionization frequently clears up this point; failure to effect a cure or any improvement justifies the assumption that disease of the antrum is sufficiently far advanced to call for mastoid operation. Ionization is also valuable as a part of the after treatment.

British Medical Journal.

December 17, 1921, ii, 3181.

1. The Purvis Oration on Respiratory Phenomenon in Nervous Disease. J. Purves Stewart.
2. An Address on Some of the Causes of Our C, Population. T. E. Knowles Stansfield.
3. The Bacterial Action of Gastric Juice on B. Tuberculosis. John Inkster and S. Roodhouse Gloyne.
4. An Operation for Inguinal Hernia. G. Lenthal Cheatle.
5. Loose Cartilage. Vernon Pennell.
6. The Modern Treatment of Diabetes Mellitus. E. P. Baumann.
7. Conservative Treatment of Compound Fracture of the Ankle. R. Stafford Foss.
8. Emetine in Japanese Bilharzia Disease. F. G. Cawston.

1. Respiratory Phenomenon in Nervous Disease.—J. Purves Stewart discusses respiratory symptoms in cerebral lesions, due to concussion, hemorrhage, thrombosis, or embolism; those due to cerebral meningitis, cerebral abscesses or intracranial tumors, and those due to bulbar lesions, spinal cord lesions, peripheral nerve lesions, and muscular affections. When respiratory affections are due to these causes they are mainly paralytic. The spasmodic respiratory affections may be due to disease either of the vegetative or the cerebrospinal nervous system. With regard to the vegetative nervous system, the most important spasmodic affection is asthma, whose phenomena of labored breathing consist essentially in spasm of the nonstriped bronchial muscles, enervated by the dorsal motor nucleus of the vagus. Coughing, yawning, sneezing, and hiccough are all of them reflex phenomena which may be induced in healthy individuals by appropriate stimuli. Of these hiccough calls for special mention. It is a spasmodic myoclonic contraction of the diaphragm, occurring so suddenly that the glottis is suddenly closed by suction, producing the characteristic inspiratory noise. Hiccough is sometimes

excited by transient gastric or other abdominal irritation; it may be due to disease of the peritoneum in the region of the diaphragm (the phrenic nerve being sensory as well as motor in function). Other cases of hiccough are due to central disease of the respiratory centers in the medulla; thus it may be produced by the toxin of epidemic encephalitis. Hiccough of this kind may continue for days at a time, at the rate of twelve to fifteen hiccoughs per minute. Hiccough may also occur as a terminal symptom in tumor of the posterior fossa of the skull. One may also meet with cases of hysterical hiccough, which are recognized by their history and concomitant phenomena, and the symptom promptly subsides under appropriate suggestive treatment. Other spasmodic affections in which the respiratory mechanism is upset are whooping cough, laryngismus, tetanus, rabies, major epilepsy, athetosis, chorea, and exophthalmic goiter. Various respiratory phenomena may be met with in hysteria. Of these hysterical cough is the commonest, but rapidity of respiration, hysterical sobbing, and all sorts of curious laryngeal noises may be met with in different cases, but whatever their variety they cease during sleep. Hysterical cough is unaccompanied by true dyspnea, while abnormal physical signs in the respiratory organs are conspicuous by their absence. Hysterical rapidity of breathing is without cyanosis or other respiratory distress, and the pulse remains quiet and steady. Respiratory tic or habit-spasms are frequently noted in highly strung, often highly intelligent, individuals of psychasthenic nervous constitution. Such persons are not necessarily mentally subnormal; on the contrary, some of them are far above the average of intelligence. These respiratory tics are psychomotor affairs of cortical origin, and never interfere with voluntary movements.

3. The Bacterial Action of Gastric Juice on B. Tuberculosis.—John Inkster and S. Roodhouse Gloyne describe experiments carried out with gastric juice removed from the stomachs of persons free from gastrointestinal disease, at various intervals of time after an oatmeal test meal. They find that such gastric juice shows very little power of destroying tubercle bacilli in sputum which has been exposed to it for ninety minutes, and tubercle bacilli in mouth washes which had been exposed to it for ninety and 180 minutes respectively. In one case a total acidity of 62, in another 54.1, and in a third of 24 failed to destroy the bacillus. It would seem that the protection against the tubercle bacillus afforded by the gastric secretion is apparently by no means perfect. But it must be remembered that the dilution of contents and the motor activity of the stomach probably play a large part in this mechanism of protection, and these latter factors cannot be properly experimented upon *in vitro*. The results in these experiments are in general agreement with the conclusions arrived at by Allan Macfadyen under different conditions and with bacteria other than *B. Tuberculosis* as long ago as 1887. The writers know of no records which show whether or no tubercle bacilli have been found in gastric juice in persons not suffering from clinical tuberculosis. None were found in these individuals. It would be interesting to have this point cleared up, as it may have an important bearing on the portals of entry of the bacillus.

4. An Operation for Inguinal Hernia.—G. Lenthal Cheatle claims that by this method one is enabled to deal with certain difficulties that are sometimes met with in the excision of the sac. He makes a transverse skin incision four or five inches long and one and one-half inches above the symphysis pubis. A transverse incision is then made in the aponeurosis of the rectus abdominis of both sides, care being taken not to injure either linea semilunaris. The linea alba is undercut upward and downward, to within one or two inches of the umbilicus and pubis respectively; in doing so the sheath of each pyramidalis muscle will be opened. The opening thus made is retracted upward and downward and the subperitoneal tissue exposed by separating the abdominal muscles in the midline. The peritoneum and its contents are pushed up on each side and if necessary kept up by packing. A lower retractor pulls the abdominal wall downward, outward, and forward. Its prongs should reach the deep epigastric artery and vein. The upper retractor pulls the structures outward. This exposes the iliac fascia and the neck of the sac. The sac is then cleared and pulled out of the canal. If there are no indications of the possibility of its easy extraction, the sac is cut and the canal portion replaced. The remains of the sac in the peritoneal space are then radically excised. The neck of the sac, including part of the parietal peritoneum, is then transfixed and removed. Finally the inguinal canal of the opposite side is examined. Hernia which should not be selected for this operation are direct hernia, irreducible enteroceles, hernia in male children under seven or eight years of age, and old hernia in which the internal opening has been dragged down opposite the external. The procedure is suitable for hernia in females of any age, and all uncomplicated inguinal hernia in males over seven or eight years of age.

Le Bulletin Médical.

December 3, 1921, xxxv, 49.

Monilia Pneumonia.—Assimis announces the existence of a type of chronic pneumonia due to conidia—a conidiosis. The organisms in question are visualized as perfect fungi which through ascoform reproduction have become degraded. They can be cultivated especially on Sabaraud's medium and are pathogenic to man, causing lesions of the skin and mucosae. As a specific cause of bronchitis they have been known since 1905, although the *Monilia* bronchitis is but one of a family of bronchial mycoses. The family in question is usually regarded as of tropical incidence, but the *Monilia* form at least has been seen as far north as Great Britain. The author, who is familiar with the bronchitis of this origin, announces that the same fungus can cause chronic pneumonia and relates a case seen by him in Athens, which ended fatally. The victim was a man of 58, whose family were down with influenza. For several years he had coughed, but ascribed this to tobacco. While caring for his family his cough became worse, and he began to spit blood. The diagnosis was pleurisy, and patient was sent to the hospital for incision. Several punctures were negative. At this juncture the author took charge of the patient. The dullness certainly suggested a pleuritic effusion or a tumor—nothing else could have caused such absolute dullness on percussion. The *x*-ray, sputum examination and puncture threw no light on the diagnosis. The accompanying fever fell under quinine, the man being an old paludic. Persistent sputum examination finally brought to light the Monilia. The patient eventually became adynamic, and vomitinfi and diarrhea set in, frequent and profuse, until the subject died of exhaustion. An autopsy was not permitted. The patient lived over nine months after the first appearance of fever, so that clinically the case bore no resemblance to pneumonia, ranking rather in this respect with the chronic affections such as tuberculosis, syphilis, actinomycosis, and cancer.

Wiener klinische Wochenschrift.

November 17, 1921, xxxiv, 46.

The Shiga Bacteriophages.—Bail refers to the filtrable organism which is able to exert a purely specific lytic action on the Shiga bacillus. This as yet invisible organism was first discovered by d'Herelles of the Pasteur Institute, Paris. Before this Salambeni had shown that certain myxomycetes could exert a similar action on bacteria. One strain of stool filtrate can act on the Shiga in incredible dilution. Aside from this, however, quantitative relations can be determined between the lytic solution and the bacteria dissolved. As is known the bacteriophages can proliferate in suitable media, and it is because of this ability to multiply that the invisible virus is known to be living. That different varieties or strains of bacteriophages occur may be shown in various ways, chiefly by the different ways in which smears of Shiga bacilli are attached. In animal experiment the injection of bacilli cultures (Shiga) into the peritoneal cavity produces an antisubstance which is bacteriophagic. Under these conditions the formation of bacteriophages is a defense reaction, but bears no relationship whatever to leucocytosis. The fact of its restriction to this particular bacillus robs the discovery of any practical interest. From another angle the pure cultivation of normal Shiga bacteria in certain media has led to the formation of the bacteriophages.

Book Reviews.

THE GLANDS REGULATING PERSONALITY, A Study of the Glands of Internal Secretion in Relation to the Types of Human Nature. By LOUIS BERMAN, M.D., Associate in Biological Chemistry, Columbia University; Physician to the Special Health Clinic, Lenox Hill Hospital. New York: The Macmillan Company, 1921.

THIS is the most interesting and enlightening book on endocrinology that the reviewer has ever read. It reads like a novel, and holds the attention from start to finish. The author presents not only his first-hand knowledge of the subject, but also his conclusions from a complete and discriminating study of the vast literature.

Most practitioners are too busy to study clinical endocrinology, and many physiologists, who can determine only the evident demonstrable effects of *total* extirpation of glands, *i.e. operated* animals, will not accaccept the clinical facts that there are all grades of over- and under-secretion of these glands, which not only cause symptoms but, as the author so well describes, modify character and cause all kinds of normal and abnormal impulses.

One need not accept every conclusion at which the author arrives, but this book represents a basic platform of generally accepted facts, of partially accepted probabilities, and of unproved possibilities from which can be built up by laboratorial, pathological, and clinical investigations one of the most important biological and chemical sciences of the age.

Life seems to be made up of chemical and electrical reactions. The vitamines are probably necessary for the activation or for the chemical composition of the hormones manufactured by the endocrine glands, hence their vital importance. Doubtless the character of the food, the climate, the environment, the infections suffered, and the type of glands inherited all, as the author urges, modify and determine the amount and efficiency of the hormones produced by the endocrine glands.

Every practising physician should, unprejudiced, study all that is known of the endocrine glands, and of the effects of chronic, as well as acute, focal infection (as chronic focal infection always injures one or more glands by toxins), and then use the knowledge thus acquired in the treatment and management of his patients.

It is not necessary to discuss the book in detail. It is sufficient to recommend that this book be carefully read, and the reader will then be the better equipped to understand and treat his patients.

RADIANT ENERGY AND THE OPHTHALMIC LENS. By FREDERICK BOOTH. Introduction by WHITEFIELD BOWERS, A.B., M.D. Price $2.25. Philadelphia: P. Blakiston's Son & Co., 1921.

THIS volume claims to be no more than a clear and complete treatise on refraction. The number of text pages is 226 and of illustrations 230. The thirteen chapters are devoted in the following order to Anatomy, Physics of Light, etc., Radiant Energy, Vision, Refraction, Accommodation, Convergence, Cycloplegics, Visual Acuity, Retinoscopy, Ophthalmoscopy, Transposition, Fitting and Prescribing and Mathematics. A survey of the book appears to bear out the claim of Dr. Bowers that the assemblage of facts and arrangement of the material leave nothing to be desired in a work of this scope. Owing to the large number of text figures and the large print the actual number of words in the book is relatively small, but the subject matter is compressed to the utmost. Thus the chapter on Vision occupies but a little over two pages, while Einstein's gravitational theory of Light is summed up in a little over a page.

MODERN ITALIAN SURGERY AND OLD UNIVERSITIES OF ITALY. By PAOLO DE VECCHI, M.D., Corresponding Member of the Royal Academy of Medicine, Turin; Fellow American College of Surgeons. Foreword by GEORGE D. STEWART, M.D., President New York Academy of Medicine. With fifteen full-page illustrations. Price $5.00. New York: Paul B. Hoeber, 1921.

THIS is a very delightful as well as vitally instructive work, which really is a product of the war. It tells of the great advance medicine and surgery have made in Italy since the war; of the part Italy took medically during the war, and the results now for Italy since her enormous medical stride. Dr. Stewart, in his foreword says: "The achievements of Italy in Medicine and Surgery during the last war, however, have been so great that the world can no longer fail to notice them. . . . It is with the hope of promoting and fostering such an understanding that Dr. Paolo De Vecchi, an eminent and learned Italian, who studied at the University of Turin, and has spent his entire professional life in America, has written this volume." It is a book to be recommended for its presentation of such unusual data and for the excellence of its production, which in this age of hurry and lack of attention to details, is indeed a fact to be noted, not ignored.

CLINICAL LECTURES ON ENLARGEMENT OF THE PROSTATE, With a Description of the Author's Operation of the Total Enucleation of the Organ. By SIR PETER J. FREYER, K.C.B., M.D., M.Ch., M.A., LL.D., etc., etc. Surgeon to St. Peter's Hospital, London, etc., etc. Fifth edition. Price $3.25. New York: Wm. Wood & Co., 1921.

THE fourth edition of this well-known work has been for some months out of print, the appearance of the fifth having naturally been delayed through the interruption of the war. The lectures which comprise the monograph have in the meantime been amplified and brought up to date. Many new case histories have been added without eliminating any of the original ones. A special new lecture is devoted to cancer of the prostate. The total material of complete enucleations now stands at 1625 cases and of this number 221 were malignant and all but four of these cancerous. These prostates were diagnosticated as cancer and according to calculations of certain pathologists at least an equal number must have been masked as benign growths. A classic work like this should be in the library of every practitioner.

HANDBOOK OF SKIN DISEASES. By FREDERICK GARDINER, M.D., B.Sc. (Public Health), F.R.C.S.E. Lecturer on Skin Diseases, University of Edinburgh; Physician for Diseases of the Skin, Royal Infirmary, Edinburgh. E. & S. Livingstone, Price $2.00. New York: William Wood & Co., 1920.

THIS little work of 160 pages embodies the author's experience as a lecturer, whence the absence of a rigorous classification. The common dermatoses are first considered, for the student will for the most part enter into general practice and should learn something of the more prevalent diseases. Only essentials can be discussed in so small a volume, hence the aim is terse description supported by forty-six illustrations. While following the Edinburgh school of dermatology as exemplified by Jamieson and Norman Walker, the author has drawn on English, American, and Viennese authority and has given his own personal views when it seemed desirable. In more detail, the book comprises fifteen lectures by the author on the following subjects: streptococcic and staphylococcic dermatoses; diseases due to animal parasites; seborrhea and congeners; psoriasis; infections of the hairy scalp; urticuria and erythema; bullous eruptions; prurigo and lichen; pityriasis; tuberculosis and tuberculides; pigment anomalies; neoplasms and syphilides.

ÉTUDES D'HYDROLOGIE CLINIQUE. Edited by ROGER GLÉNARD. Paris: L'Expansion Scientifique Française, 1921.

THE responsible editor for this serial volume is Dr. Roger Glénard of Vichy, who is, we believe, the son and successor of Glénard of enteroptosis fame, deceased not long ago. In the first number (April, 1921), in addition to articles by the editor, there are six others by other collaborators, Labbé, Flurin, Heitz, Joly, Palliard and Verdaile, each dealing with some aspect of diabetes, comprising the treatment of that disease at the hydromineral stations at Bourboule, Vittel and Royat, the venous circulation of the diabetic, and rhinopharyngitis and bronchitis in the same class of patients.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON OBSTETRICS AND GYNECOLOGY.

Stated Meeting, Held November 22, 1921.

DR. HAROLD BAILEY IN THE CHAIR.

Hydatidiform Mole.—Dr. MILTON A. SHLENKER reported this case. He said that this condition was supposed to occur only once in 2,400 cases. He had had occasion to present two other specimens before the section within the year. He presented this case before the section because of its typical symptomatology and the great difficulty they had in coming to a conclusion. The patient, a woman thirty-five years of age, came under observation on July 18, 1921. She had been married fourteen years, had four children, and no miscarriages. Her husband was well. Her father died of carcinoma of the stomach at the age of forty-five years. Her appetite was poor, she was habitually constipated, and had had stomach trouble for the past ten years. She stated that a doctor had told here that she had gallstone attacks. She began to bleed on June 1. She continued to bleed and passed clots, though she did not experience abdominal pain until she was admitted to Gouverneur Hospital on July 18. Abdominal examination at this time revealed no tenderness or tumor. Vaginal examination revealed a lacerated perineum, rectocele and cystocele, and bilateral laceration of the cervix. The uterus corresponded to a three months' pregnancy and was in the normal position. Palpation of the adnexa showed a round hard mass the size of a hickory nut on the left side, which was very tender on palpation. The patient's teeth were in bad condition, and on July 21 she complained of an abscessed tooth, which was removed. On the following day she seemed much better. The bleeding had stopped. The uterus was still enlarged and the cervix firmly closed. The diagnosis was threatened abortion. The patient insisted upon leaving the hospital against advice. On August 29 she was readmitted. She stated that bleeding had recurred and had been more or less continuous. About three weeks before she noticed that she began to sweat, and complained of backache, headache and difficult vision. She passed dark urine freely and had a bad taste in her mouth. The uterus was large, globular, and extended a little above the umbilicus. No fetal heart sounds were heard, nor was ballottement present. There was also marked edema of the vulva and lower extremities. The blood pressure was 170 systolic, 90 diastolic. The specific gravity of the urine was 1,034; albumin 4 plus, and many leucocytes, granular casts and red blood cells were present. The temperature was normal. On September 2 interruption of pregnancy was decided upon for a supposed toxemia. The cervix was packed with iodoform gauze. Three days later the patient was bleeding profusely. She was removed to the operating room and the cervix dilated. On palpation of the cervical canal grape-like bodies could be felt, but no evidence of a fetus. With the use of a sponge forceps large quantities of this material was removed from the uterus. After operation the uterus contracted to about one-fourth its previous size. The pathological report stated that fragments of cyst wall and chorionic villi were found. The diagnosis was hydatidiform mole. The patient made an uneventful recovery, and was discharged on September 18, apparently well. On October 25 she was readmitted to the surgical division of the hospital with a history of more or less continuous bleeding. On October 25 she was operated on by Dr. Ladin and a large amount of tissue resembling placenta was removed. There was no evidence of products of conception. A laparotomy was performed and both ovaries found to be cystic, the right being the size of an orange, while the left was much smaller. A bilateral sapingo-oophorectomy was performed. The pathologist reported that the scrapings were simply hypertrophied endometrium and that the ovaries had undergone a cystic degeneration.

Death of Fetus in Twin Pregnancy Due to Twists in the Cord.—Dr. MILTON A. SHLENKER reported this case and presented the specimen to show a comparatively rare condition as a causation of the death of the fetus. The etiology of the condition was unknown, but it was supposed to be due to the movements of the fetus. Torsion or spiral winding of the cord was a normal condition, and was usually from left to right. It was said to begin about the third month of gestation. As a result of the atresia of the cord in this case there was complete absence of the jelly of Wharton. Death as a result of this condition was supposed to occur a few days prior to the delivery of the child. In this case the patient complained of excessive fetal movements about two weeks before her delivery, but had scarcely felt any life whatsoever after that period. The dead fetus was a male and decidedly more robust than the female child, which was delivered alive and in good condition. The first child to be delivered was the dead male. He presented a left occipitoanterior. The membranes were ruptured artificially, and much meconium was discharged in the amniotic fluid. On delivery the fetus did not breathe, nor was there any beating of the heart, and all efforts to establish respiration were without avail. The second child was delivered by a breech extraction and without difficulty. The specimen showed a single placenta with two cords, each coming from the opposite sides. Each child was contained in a separate amniotic sac. The placenta was elongated. The dead child was attached to the large half which, in the fresh state, was pale in color and tough to the feel, and there was more or less of a demarcation line from the other half of the placenta, which was apparently normal in consistence and otherwise.

Dr. H. C. WILLIAMSON said the toxic symptoms in the case of hydatidiform mole interested him. The patient had a low blood pressure and the urine showed albumin and casts, a kidney toxemia, which was cured when the hydatidiform mole was removed. This was an evidence that toxemia of pregnancy was due to syncytiotoxins.

Dr. WILLIAM P. HEALY said that Dr. Shlenker had had the very unusual experience of having had three cases of hydatidiform mole within one year. The symptoms were those of impending abortion. There was only one possibility of avoiding error, and that might have justified his making a diagnosis of hydatidiform mole when the patient first came under observation, and that was that the fundus was four inches above the symphysis pubis. That would indicate a uterus somewhat larger than it ought to be at that period. When the woman came under observation later, after having been home for a time, it was evident that she had a very large uterus, larger than it should be, and there were no fetal heart sounds. With these symptoms and the history of bleeding the diagnosis became an easier matter. The question that came up was whether when she was first seen she had the hydatid mole or whether it developed in an incomplete abortion. He did not see how that could be answered, but we knew that a careful examination of the secundines microscopically had shown a very high percentage of hydatid degeneration. It was more than possible that the patient might have incompletely aborted and later developed the hydatid mole.

Dr. BAILEY said that perhaps some of those present might remember that Dr. Vineberg reported before the New York Obstetrical Society a case of hydatidiform mole in which after leaving the hospital the patient had a frank hemorrhage. She was brought back and the uterus removed without further examination, and that uterus proved to have a chorioepithelioma growing in the fundus. The case brought up some discussion as to the advisability of going ahead and removing the uterus with only a history of bleeding following the removal of a hydatidiform mole. It might be recalled that some 13 per cent. of women having hydatidiform moles died in the first place, and 15 per cent. of the remainder developed chorioepithelioma. For this reason it was questionable whether the treatment should not be removal of the uterus. Dr. Bailey said he had always done as Dr. Shlenker did, that was dilate the cervix and attempt with the finger and sponge forceps to remove the hydatidiform mole. This woman should have had at the second operation a laparotomy and removal of the uterus. There were bilateral cysts of the ovaries which were simple cysts,

but nevertheless it would have been better for the women to have had the uterus removed, for it was probable that a chorioepithelioma was growing there. Dilatation of the cervix and removal of the mole by sponge forceps was the usual, but could not be considered as satisfactory treatment for this condition. As for the second case, it was exceedingly remarkable that that child should have grown to full size and did not die until a short time before birth.

Dr. SCHLENKER said the fetus was slightly macerated. From the history of the case it would seem that the fetus had been dead for two weeks.

Dr. BAILEY said it was still remarkable that the child should have grown all through the fetal period and obtained sufficient nourishment from that twisted cord.

Dr. SCHLENKER said Dr. Healy had inquired at what period of gestation this mole occurred. This might have been determined by a microscopical examination. After the third month of gestation the layers of Langham's and the syncytium became fused into a single layer. As to the removal of the hydatidiform mole, Dr. Schlenker said he would consider a panhysterectomy for this condition a rather radical procedure. It was his plan to carefully evacuate the uterine cavity, and thereafter to keep the patient under careful observation for quite a long period. Had the patient been returned to his service under the existing condition he would have performed a panhysterectomy, especially since this patient had bilateral cysts of her ovaries. It was now known that lutein cysts were an etiological consideration in chorioepithelioma. Dr. Schlenker said he was deeply interested in the case of twisted cord with death of the fetus because of its extreme rarity. He had been unable to find any great number of similar cases reported. He noted one reported case in which there were 348 twists in the cord. This fetus, while in fair state of preservation, showed some evidence of post mortem changes.

Notes on a Recent Visit to Austria.—Dr. I. C. RUBIN, in response to an invitation from the chairman, made this informal address. He stated that he had visited two places in a five and one-half weeks' visit abroad. One was Vienna, where he spent a longer time eight to twelve years ago, and where he was rather familiar with conditions as they existed before the war. The first impression upon one acquainted with Vienna prior to 1914, on arriving there now, was mingled sadness and depression. The people of Vienna formerly had the reputation of being a most genial, most welcoming, hospitable people, brilliant, easy-going, and cultured. In some respects the war has driven the whole people to the verge of despair, for there seemed to be "no bottom under their feet, no roof over their head." A great deal of movement was now noticeable—all in the mad struggle to get out of the mess they were in politically and the débacle financially. But it was a frantic motion on the part of the great multitude, with never a hope of rehabilitation. In spite of their culture and their wonderful esprit in letters and art but one thing was uppermost in their minds now, and that was the matter of "exchange." Some of the places of recreation were still there, but all was changed, the people were shabbily dressed, the charm and the ornament were gone. The "Ringstrasse" was now a shabby affair. During the first week Dr. Rubin said he tried to get into the spirit of the place and went to the Embryological Institute. There he found Professor Fischel in charge. It was remarkable to see the wonderful way in which he was carrying on his work. The atmosphere about his institute was that generally found in Vienna before the war. This man was moving his old institution into a new one, and was busy getting his new equipment. He said the government was allowing him 500,000 kronen, which was equivalent to about $2,500, to equip the new institution. Imagine equipping an institution like Roosevelt Hospital with $2,500! He said he hoped to get 250,000 kronen, when he would be in a fair way to complete the equipment. Nevertheless, in spite of all the drawbacks, remarkable scientific work was being done. After the first week, Dr. Rubin said he began to visit the old clinics. It was still vacation time, and although the men did not take long vacations it was a time when most of them were away. Professor Beham occupied the place formerly occupied by Schauta and Wertheim's place was occupied by Professor Kermanner, formerly Docent under Von Rosthorn, a man with whom Dr. Rubin had worked. Their facilities were absolutely short. The laboratory was not manned by the old chief; there used to be Professor Schottlaender at the head of the laboratory. He was a special gynecological pathologist who had been a gynecologist and a general pathologist, and finally devoted himself to gynecological pathology. Today a much younger man was there. The new chief had not yet gotten into the activities of the institution, but it was safe to predict a continuance of that essential scientific conduct of the work which characterized Von Rosthorn's and Wertheim's direction, for Professor Kermanner was a man of great scientific attainments and his personality would attract many students and workers. The *x*-ray department was continuing to do progressive work, and in operative work they were going ahead. They had developed a new operation for uterine prolapse, for example. Weibel of the Wertheim clinic had devised an operation for prolapse and Halban in the Wildener Hospital had also devised an operation for prolapse. Halban did not use the *x*-ray for carcinoma or myoma except in inoperable cases. He was a forward looking and thinking man, one of the most advanced men in gynecology abroad today, and his opinions were well worth considering. His surgical technique was so perfect that few could compete with him. His preference to use the operative procedures rather than the *x*-ray was perhaps explainable on the ground of his personal individual skill. His clinic was worth visiting, and his prolapse operation would probably gain many adherents. It consisted in separating the vesicovaginal fascia in the manner that Dr. Rawls did. He succeeded in getting the fascial plane in one or two minutes. He then separated the bladder and opened the peritoneum. He drew out the uterus and then pulled down the vesical peritoneum till it appeared tense. He thus got the peritoneum down to a point where the uterus would ordinarily be stitched in ventrofixation, between the symphysis and the umbilicus. Sutures were then taken through the peritoneum and the back of the fundus for fixation. Lower sutures were passed in such a manner as to obliterate the vesicovaginal pouch. He combined in one sitting vaginal plastic work with ventral fixation and claimed that with this method he had no recurrence of the prolapse. The operation was first described by him about two years ago. *X*-ray work in Vienna was pursued by two groups: those who used it intensively and it only, and of those there were few; and those who used it as an additional agency in gynecological procedures. In the Bettina Hospital, where Latzko did his work, they were doing extensive *x*-ray work. Where Wertheim was formerly chief there is also an *x*-ray department which was worth while mentioning. In the Kermanner clinic Von Graff preferred to use the *x*-ray for the relief of uterine bleeding in one form or another outside of carcinoma. He had devoted his studies particularly to bleeding at puberty. In this group of patients he seemed to be able to regulate the flow and establish normal menstruation. The matter of dosage had been so regulated that retention cyst follicles were destroyed and he left enough of the primary ovary and smaller follicles to carry on menstruation. If his work was substantiated his method would be of great help in the treatment of these cases. Most of the men in Vienna were excellent operators. That was why they still adhered to the surgical technique. In that respect we Americans, if one might be permitted to say so, felt the same way. It was just possible that the Germans were not as good technicians as the Vienna surgeons. However, he did not depreciate the surgery of the Germans. Frankfort was the only town he visited in Germany, where he was anxious to see Seitz. Seitz and Wintz were responsible for the development of an apparatus which they had designed in cooperation with Dessauer, and they appeared to be men of great mechanical conception and skill. The thing Dr. Rubin was first struck with in Frankfort was the wonderful *x*-ray outfit which was shown to him. A striking difference was noticed between the ward patients in Vienna and those in Frankfort. In Vienna the ward patients were in a most deplorable condition; the bed sheets and supplies presented a condition of squalor not to be seen in the worst slums. It was amazing that good operative results

could be obtained in such surroundings. In Frankfort, on the other hand, in the wards the bed sheets were not such as were used before the war, they were not as spick and span but they were clean. The differences here, too, were due to the difference in money exchange. In Frankfort there was a university and the old hospital was under its auspices. Schmieden was head of the surgical clinic and Seitz was head of the gynecological department. At this hospital the inflammatory cases were not treated by operation but were treated conservatively. Laparotomy had been practically abandoned, though once in a while an exploratory laparotomy was done for carcinoma. The treatment for carcinoma and fibromyomata was with the *x*-rays and that left only a few plastic operations and ovarian tumors, and if the obstetrical surgeons did good work there were few plastic operations. So it would seem that we had better learn to use the *x*-ray. That was the most instructive thing he saw in Frankfort. Wards of patients with inflammatory disease were being treated conservatively; he did not see one of these patients operated upon.

Dr. LE ROY BROUN asked how long the inflammatory cases were kept in the hospital.

Dr. RUBIN replied that they remained from seven to twelve weeks. Myomata were not operated upon; that was in Frankfort. Nevertheless, it left the very suggestive impression with him that perhaps gynecology was leaning that way, though perhaps not to the extent it was carried there. Dr. Seitz treated all carcinomas with *x*-ray. They had no radium, though they had some mesothorium. There were cases in which they naturally used a combination of *x*-ray, mesothorium, and surgery. It was interesting to see what the Germans had done with two or three different procedures. With *x*-ray alone in carcinoma they succeeded in getting a permanent cure in all cases treated in about 24 per cent. With the operative treatment in Bumm's clinic they are getting cures in 30 per cent. of the cases. Bumm employed both surgery and *x*-ray and seemed to have cures in 60 to 70 per cent. of his cases. That was the position to take toward carcinoma. Where carcinoma was treated surgically, it was treated prophylactically with the *x*-ray afterward. Bumm operated almost 75 per cent. of the cases he got. It was pretty well known that they gave a very intensive treatment with the *x*-ray, and following the treatment the patients seemed to be in extreme shock. They were in pretty bad shape for ten days days or two weeks. They were temporarily in a worse condition than after the radical extensive operation for carcinoma. They looked as though they had been struck in the solar plexus by a terrific force. The cachexia was extreme. They were treated by transfusion and stimulation and they appeared to come around, but for the time being they made a very bad impression. The inflammatory cases appeared to do well. The Germans seemed to be bent upon heroic treatment in conditions in which we would employ milder measures; on the other hand their conservatism in the inflammatory cases exceeded ours. When their results were published we should be able to formulate a course of action by comparing their results with those of surgical methods.

Cesarean Section Demonstrated by Motion Pictures.—Dr. JOHN VAN DOREN YOUNG gave this demonstration. He pointed out the advantage of having a reel of this kind so that when one had a cesarean section to perform he could have the reel run off and thus refresh his memory. By noting faults in the technique he could avoid them. The motion picture reel was a wonderful analyzer of one's surgery. The operating time in the cesarean section was twenty-nine minutes. Dr. Young called attention to the advantages of the oil pad for walling off the uterus. It was easily introduced and easily removed without the gut following it; it left no peritoneal trauma and it absorbed perfectly anything with which it came in contact.

Dr. BAILEY, commenting on the fact that argyrol was used in the eyes of this cesarean baby, said that both in Bellevue and at the Manhattan Maternity Hospital they used argyrol in the babies' eyes as a routine procedure, whether the child was born by way of the natural birth canal or by cesarean section. He thought there was no disadvantage in using argyrol in the baby's eyes after cesarean section.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

MEDICAL EXAMINERS OF WYOMING.

Cheyenne, June 6-8, 1921.

(*Continued from page* 43.)

PRACTICE.

1. Give cause of benign endocarditis. (*b*) Also cause of malignant endocarditis.
2. Give symptoms of malignant endocarditis.
3. Give cause and symptoms of dilatation of the heart. (*b*) What do you mean by relative insufficiency?
4. Give the cause, theory, and symptoms of chlorosis.
5. Give the causes, symptoms, and treatment of myxedema.
6. Give incubation period of smallpox, scarlet fever, measles, German measles, and whooping cough. (*b*) Differentiate between the pock of smallpox and that of chickenpox.
7. Give causes, symptoms, and treatment of uremia.
8. Give the causes of renal calculi, symptoms, and treatment.
9. Differentiate between general miliary tuberculosis and typhoid fever.
10. Give etiology, symptoms, and treatment of arteritis deformans.
11. Give period of eruption of enteric fever, typhus fever, variola, varicella, erysipelas, scarlet fever, measles, and German measles.
12. Give symptoms, diagnosis, and medical treatment of intestinal obstruction.

ANSWERS.

PRACTICE

1. *Causes of benign endocarditis:*—It is probably secondary to some infection, rheumatism, chorea, tonsillitis, scarlet fever, pneumonia, phthisis; it may be a terminal condition in cancer, gout, nephritis, or diabetes.

Causes of malignant endocarditis:—It is generally secondary to a previous endocarditis, or it follows a septic focus, as in pneumonia, osteomyelitis, otitis media, puerperal septicemia. (From Tidy's *Synopsis of Medicine.*)

2. SYMPTOMS OF MALIGNANT ENDOCARDITIS. "Three types may be distinguished— (1) *The Septic Type* is characterised by the symptoms of septic infection—viz., rigors, sweats, oscillating temperature, emaciation, and metastatic abscesses. The symptoms may continue for months. (2) *The Typhoid Type* is characterised by irregular or intermittent fever, looseness of the bowels, petechial rashes, and a rapid assumption of the typhoid state. Great difficulty may be experienced in distinguishing this form from typhoid fever or meningitis. (3) *The Cardiac Type* is that in which symptoms of acute endocarditis, with fever of a septic type, appear in the course of a chronic valvular lesion. In some of these cases death is rapid; others may recover after a protracted illness.

"Along with these general symptoms there are usually definite cardiac signs—development of murmur, dilatation of the heart, cardiac irregularity, and so on. But the cardiac symptoms may be altogether latent, causing difficulty in diagnosis. Enteric fever and miliary tuberculosis are the chief sources of confusion. In malignant endocarditis there is leucocytosis, in enteric leucopenia; in endocarditis the murmur may change its character, or fresh murmurs may appear. In enteric the Widal reaction is present; in endocarditis blood-culture may show the presence of an organism. In miliary tuberculosis tubercle may be present in other regions of the body, and pulmonary signs are often marked.

In both simple and malignant endocarditis vegetations may be detached from the affected valve, and plug the smaller arteries. In the simple form these *emboli* are of importance when they implicate end-arteries (brain, lungs, kidneys, spleen), and they then result in hemiplegia, hæmorrhagic infarction of the lungs,

hæmaturia, and so on. In the malignant form the same results are produced when end-arteries are affected, but an abscess subsequently forms at the seat of the embolus, while in the case of other arteries metastatic abscesses ensue. Obviously the risk of detachment is greater in the ulcerative type."—(Wheeler and Jack's *Handbook of Medicine.*)

3. DILATATION OF THE HEART. *Causes:*—"This condition may be primary or secondary. It is *primary* when it is due to causes directly affecting the myocardium, such as bacterial toxins or chemical poisons, of which alcohol and tobacco are the chief examples, and when it follows emotion, shock, or physical overstrain. *Secondary* dilatation is the result of valvular lesions, adherent pericardium, increased peripheral resistance (arterio-sclerosis, Bright's disease), disease of the coronary arteries, and persistent tachycardia. Fatty and fibroid degeneration of the cardiac muscles predispose to it, and so does inadequate nutrition of the muscles, such as it met with in anæmia. Prolonged pyrexia may also cause it.

Symptoms:—See above. PHYSICAL DIAGNOSIS. 1. *Relative Insufficiency.* By this is meant that the cardiac valves are normal, but that the ring to which the valve segments are attached have become dilated or stretched and therefore the valve segments can not meet.

4. CHLOROSIS. *Cause and theories:* "The cause of chlorosis is unknown, though there are many theoretical explanations, of which the following are the chief: (1) The disease is due to constipation and toxic absorption from the bowel (Sir Andrew Clark). (2) The demands of puberty reveal a congenital narrowness of the arterial system, which prevents a proper supply of blood to the various tissues (Virchow). (3) The organic iron compounds of the food are broken up by excessive decomposition in the alimentary canal, and the iron thus liberated cannot be absorbed into the blood (Bunge). (4) Chlorosis is due to excessive loss of blood at the period of puberty (menorrhagia), which leads to dyspeptic conditions, anorexia, and defective absorption of iron (Stockman). (5) The disease is due not to an absolute diminution of hæmoglobin, but to an excess of plasms (Haldane and Lorrain Smith). None of these theories covers all the cases. Constipated subjects are not always chlorotic, there may be no congenital arterial defect or excessive loss of blood, and reduction of the plasma does not cure without administration of iron. At present we can only assume that in women the adolescent period causes an increased demand upon the blood-forming organs, which in some cases they are unable to meet. Predisposing causes are defective nourishment and want of fresh air and exercise. The disease is common in girls coming from the country to domestic service or to factory life; but it is met with in all classes."

Symptoms:—"Languor, dyspnœa, palpitation on exertion, headache, noises in the ears, and dyspeptic symptoms, as in symptomatic anæmia. The greenish waxy pallor of the complexion is conspicuous, but may be masked by ruddiness of the cheeks. The mucous membranes are pale. The more characteristic symptoms in addition are plumpness; systolic murmurs at the base of the heart; "*bruit de diable*" at the lower end of the jugular vein; constipation and irregular, profuse, or scanty menstruation. Mitral regurgitation is sometimes present—the result of relative insufficiency of the valve, following upon dilatation. Thrombosis of the femoral vein, or even of the cerebral sinuses, is an occasional complication, and gastric ulcer is not uncommon.

"*The blood* is pale, and the corpuscles are poorly colored. Poikilocytosis is sometimes present, and normoblasts may be found in severe cases. The number of red corpuscles is not greatly diminished (60-80 per cent), but the percentage of hæmoglobin is much below normal (30-50 per cent). The color index is thus fractional. Leucocytes are not increased."—(Wheeler and Jack's *Handbook of Medicine.*)

5. MYXEDEMA. *Causes:*—"The causes of the atrophy of the thyroid gland is unknown. It is more frequent in women than in men and usually develops about middle life. The disease is said to have followed the extirpation of the gland in the adult.

Symptoms:—The disease develops slowly, often a number of years elapsing before all the characteristic phenomena are present. The face and neck, and often other parts of the body, have a bloated appearance. The normal wrinkles are obliterated, the nose is wide and thick, the lips thick and everted, the mouth enlarged, as is also the tongue, giving a coarse and broadened or mask-like appearance to the features. The skin is denser and does not pit on pressure, but is pale or chalk-like, or yellowish white, with often a small reddish patch on either cheek. The expression of the countenance is immobile and stupid. The hands and feet are enlarged, the skin is coarse and dry. The shape of the hands is changed, presenting a "spade-like" appearance. The mental condition is sluggish and stupid, with loss of memory and of interest in the environments and affairs of life. Occasionally hallucinations of sight occur. The tendency is toward a dementia. Patients often complain of neuralgic pains and numbness and a sense of muscular weakness. The temperature is always below the normal. Anemia develops and often a subacute nephritis or a glycosuria or phthisis follows.

Treatment:—"The body surface should be protected from cold by warm clothing. Warm bathing followed by inunctions of olive oil is also beneficial. Warm climates are best adapted for these patients. The administration of thyroid extract, beginning with half a grain after meals, gradually increasing the dose until several grains are taken daily or until symptoms of thyroidism appear, is of great value. The remedy should be continued over a long period and withheld when evidences of thyroidism such as nervousness, restlessness, insomnia, dyspnea, rapid pulse, cardiac palpitation, gastrointestinal disorders, confusion of mind, or delirium become manifest. The anemia and muscular weakness are overcome by the use of iron, strychnine arsenite, gr. 1/60, and nuclein."—(Hughes' *Practice of Medicine.*)

6. The *incubation period of smallpox* is about nine to fifteen days, generally twelve; *of scarlet fever,* about two to seven days; *of measles,* about seven to seventeen days; *of German measles,* fourteen days or more; *of whooping cough,* about seven to ten days.

Smallpox: The eruption usually appears first on the forehead and wrists, and on the third or fourth day; it is first macular, then papular, then vesicular, and finally pustular; it does not appear in successive crops; the spots are multilocular, and do not collapse on being punctured; the papule is hard and shotty, and does not disappear on stretching the skin.

Chickenpox: The eruption usually appears first on the trunk, is evident on the first day, comes in successive crops, it not shotty, and disappears on stretching the skin; the spots are unilocular, and collapse on being punctured.

7. *Uremia.* "*Theories of origin:*—(1) Accumulation in blood of substances normally excreted by kidneys. In uremia, urea in blood may rise from 0.015 to 0.5 per cent (in eclampsia not above 0.05 per cent.). *Objections.*—(*a*) Suppression results in latent, but not acute or chronic, uremia; (*b*) Urea and other known substances in urine do not experimentally produce uremia. (2) Decomposition in body of such substances, forming toxic products. (3) Abnormal products from disturbed renal metabolism. Bradford showed that destruction of renal tissue results in increased excretion of urine with rapid protein metabolism. Possibly absence of an internal secretion of kidney. (4) Localized edema of brain. Could not account for all symptoms.

SUMMARY OF SYMPTOMS IN ACUTE UREMIA:—*Early stage.* Headache; sleeplessness; nausea and vomiting; tingling of fingers; slight twitching of muscles; cramps in calves; breath heavy; tongue furred; pupils contracted. *Progressing.* Severe vomiting; paroxysmal dyspnea; various paralyses. *Late stage.* Cheyne-Stokes breathing; epileptiform convulsions; death in coma. TREATMENT. *Chronic uremia and early symptoms:*—Induce sweating by hot-air baths or pack and pilocarpine; saline purgatives; nitroglycerin to reduce blood-pressure. Opium is a valuable and safe drug; useful for restlessness, insomnia, delirium; also for dyspnea and Cheyne-Stokes breathing; useful also after fits to ward off recurrence. *Coma.*—Induce sweating; open bowels; venesection. *Convulsions.*—Induce sweat-

ing; chloroform if fits severe; venesection; inject morphine if fits recur; other sedatives of little avail. With venesection, intravenous or subcutaneous infusion of sterile physiological saline solution or transfusion of blood. Continuous inhalation of oxygen may be useful. Lumbar puncture has been recommended."—(Tidy's *Synopsis of Medicine.*)

8. RENAL CALCULUS. *Etiology:* AGE.—Found at all ages. Clinically very rare below ten years; common between twenty and fifty. SEX.—Slight preponderance of males. HEREDITY.—In uric acid stone there is generally a well-marked family history. SIDE.—Right and left equally affected. HABITS.—Sedentary life and rich diet. WATER.—Lime in drinking water. CLIMATE. More frequent in hot countries, because evaporation and sweating concentrate the urine. INJURY.—May give rise to calculus round a blood-clot or first give symptoms by moving a calculus that has been present.

The *Symptoms* consist of pain in the loin, markedly increased by exercise, especially on jolting. The pain may be referred to the thigh, groin, or testicle. The colic is associated with hematuria, and often pyuria exists with frequency of micturition. The kidney may be enlarged, and tender on pressure. A large stone may exist without any symptom whatever.

The most typical symptom consists in a sudden attack of excruciating and paroxysmal pain shooting down the loin to the bladder and testis. The attack is accomplished by vomiting, faintness, and collapse. Frequent efforts to pass urine are made, but only a scanty amount of blood-stained urine is passed (strangury). The pain ceases suddenly when the calculus slips back into the pelvis or reaches the bladder.

Treatment—Palliative.—The patient's diet must be regulated so that there is no excess; plenty of fluid should be taken as well as proper exercise. Alkaline purgatives and urotropin should be ordered. Sometimes under this treatment a small stone becomes encysted, but it is unlikely that a stone once formed will be dissolved. Renal colic is treated by hot baths, ½ grain of morphia, or chloroform, to relieve the pain.

Operative treatment is adopted if the above means fail, if a perinephric abscess forms, or a stone is impacted in the ureter. Nephrolithotomy is the ideal operation, but if the kidney is converted into a mere abscess cavity nephrectomy is necessary. Nephrectomy should not be done if it is suspected that the other kidney is also affected. (*Aids to Surgery.*)

9. TYPHOID FEVER.	ACUTE MILIARY TUBERCULOSIS
1. History of an epidemic or of change of residence from the country to the city.	1. May be history of cough or of a tuberculous ulcer, abscess, fistula, etc.
2. Fever rises gradually, in step-like form, reaching its height in from seven to eight days, and declines during the third or fourth week.	2. Fever rises more abruptly, and remains high (continued type) until death.
3. Respirations are moderately increased, with few râles over the lungs.	3. Respirations from 40 to 60 a minute, with numerous crackling râles and at times increased respiratory murmurs over both lungs
4. Cough may develop early, but is mild, and usually abates during the second week of the fever.	4. Cough increases gradually throughout the disease, and there may be blood-streaked sputum.
5. Cyanosis is observed only late in the disease, when there is cardiac failure or pulmonary complications.	5. Cyanosis early.
6. Tenderness in the right iliac fossa. Tympanites and from two to six semi-liquid stools daily.	6. Constipation the rule.
7. Widal serum-reaction positive after the first week.	7. Serum-reaction negative.
8. Characteristic eruption appears over the abdomen about the end of the first week of the fever.	8. Eruption absent.
9. Cultures from the blood show the presence of typhoid bacilli in from 20 to 30 per cent. of all cases.	9. Culture may develop tubercle bacilli if proper culture-medium is employed.
10. Pupils are moderately dilated early during the course of the disease.	10. Pupils less likely to be dilated and tuberculous retinitis common.
11. Feces contain the bacillus of Eberth.	11. Tubercle bacilli often present in the feces.
12. Intestinal hemorrhage and intestinal perforation may complicate typhoid fever.	12. Intestinal hemorrhage and perforation absent.

—(Anders and Boston's *Medical Diagnosis.*)

10. ARTHRITIS DEFORMANS. *Etiology.*—Exposure to damp and cold is thought to have some influence. That it is of nervous origin is suggested by the similar condition developing in diabetes where peripheral neuritis is present, and that an exaggerated condition occurs in locomotor ataxia in the form of Charcot's disease. A bacterial origin is suggested, and also that it is of toxic origin. Some cases can be definitely traced to an injury, such as a sprain, fracture, or dislocation.

Symptoms of the common *chronic* type. This may be monarticular or polyarticular. The *monarticular* variety is often traceable to injury. Pain at the beginning of exercise and during damp weather, together with creaking on movement, and perhaps some effusion, constitute the symptoms. The cartilages are "lipped" in the later stages, and there are exacerbations of pain. The limb may become useless from the pain, limitation of movement, and wasting of the muscles. The *polyarticular* variety is not due to injury, and affects chiefly females in middle life. The interphalangeal joints are first affected, becoming swollen and stiff. Bony outgrowths occur around the joints. Other joints are affected, and the patient in time may be entirely crippled.

An *acute polyarticular* variety may occur in young people after some infective fever. The smaller joints are first affected, and there is accompanying pyrexia, anemia, and pigmentation of the skin, while the muscles are wasted, and neighboring lymphatic glands may be enlarged.

Treatment should aim at removing any source of septic absorption, such as pyorrhœa alveolaris, endometritis, urethritis, etc.; otherwise it is confined mainly to alleviation of the symptoms. The joints should be kept warm by flannel coverings, frequently massaged, and on no account must movement be limited by apparatus. Good feeding and a dry climate are necessary, while of drugs iodide of potassium is of the most use. When the disease is confined to one joint, and cripples the patient, excision may be advisable. In the hip-joint thickening of the trochanter and absorption of the head occur, so that the limb is shortened. If the patient falls upon the hip, some difficulty may be found in diagnosing it from fracture of the neck. The previous history, undue prominence of the trochanter, and normal rotation, distinguish it.—(*Aids to Surgery.*)

11. *Period of eruption, in enteric fever,* is about seventh to tenth day; *in typhus fever,* about third to fifth day; *in variola,* about the fourth day; *in varicella,* generally on the first day; *in erysipelas,* on the first day; *in scarlet fever,* on first or second day; *in measles,* about the fourth day; *in German measles,* about first or second day.

12. *Symptoms of acute intestinal obstruction:* "Sudden severe pain referred to the umbilicus comes on, perhaps, after an effort. Shock, evidenced by a weak pulse, a cold, clammy skin, and a subnormal temperature,

accompanies the pain. The pain, intermittent at first, becomes continuous. Vomiting is persistent, and soon becomes fecal smelling. The patient becomes exhausted by the vomiting and inability to take food. The abdomen becomes distended, and if the obstruction is not relieved, perforative peritonitis follows, so that the patient dies in about seven to ten days from the onset. Constipation is usually absolute, though the lower bowel may empty itself at first."

Diagnosis.—This is not difficult, but the cause can usually be made out only by opening the abdomen. The mechanical form of obstruction must be distinguished from the inflammatory form, especially that of appendicitis associated with peritonitis. The temperature, localized tenderness, and rigidity, of appendicitis serve to distinguish it.

Treatment.—"The only thing that can give the patient the chance he ought to have is immediate operation. It is advisable to wash out the stomach before the operation, so that intestinal contents may not be vomited and inhaled during the operation. Three objects are aimed at: (1) To empty the distended bowel above the obstruction; (2) to relieve the obstruction; (3) to treat the strangulated intestine. In cases that are almost moribund, the abdomen should be opened with cocaine or eucaine anesthesia; a distended coil is pulled out and tapped, a Paul's tube being subsequently tied in. The peritoneal cavity is protected with gauze packing during these manipulations. The bowel is stitched to the abdominal wound after the feces and flatus have drained away. No attempt at relief of the obstruction can be made in these cases till a later date, and, of course, a high death-rate must be expected.

In less severe cases the abdomen should be opened in the midline below the umbilicus, and a systematic search made for the cause of the obstruction. The hernial orifices are first examined, then the cecum. If the cecum is distended, the obstruction lies below it; if collapsed, above it. In the former case the sigmoid should not be examined. If collapsed, the colon must then be traced backwards till the obstruction is found. If the cecum is collapsed, the intestine must be pulled out a foot at a time and examined, beginning with the ileum, and replacing it as each part is done with. If the intestine is much distended, several coils may be tapped and emptied, to facilitate the search."—(*Aids to Surgery.*)

(*To be continued.*)

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

REPORT OF THE SURGOEN GENERAL, U. S. ARMY, 1921. 329 pages with illustrations. Published by the Government Printing Office, Washington, D. C.

GEBURTSHILFLICH-GYNÄKOLOGISCHE PROPÄDEUTIK. Third and 4th Editions. 195 pages with 96 illustrations. Published by Curt Kabitzsch, Leipzig.

PROSTITUTION U. TUBERKULOSE. By Dr. I. W. SAMSON. 120 pages. Price, 54 M. Published by Georg Thieme, Leipzig.

DOMICILIARY TREATMENT OF TUBERCULOSIS. By Dr. F. RUFENACHT WALTERS. 290 pages. Price, $4.00. Published by Wm. Wood & Company, New York.

THE ORGANS OF INTERNAL SECRETION. By Dr. I. G. COBB. 352 pages. Price, $3.50. Published by Wm. Wood & Company, New York.

X-RAYS AND RADIUM IN TREATMENT OF DISEASES OF THE SKIN. By Dr. GEORGE M. MACKEE. 602 pages with 250 engravings and 22 charts. Price, $9.00. Published by Lea & Febiger, Philadelphia.

DIE IMPOTENZ DES MANNES. By Dr. P. ORLOWSKI. 148 pages, 22 illustrations and 3 colored plates. Price 38 M. Published by Curt Kabitzsch, Leipzig.

BACTERIOLOGY. By Drs. E. D. and R. E. BUCHANAN. 360 pages with illustrations. Published by the Macmillan Company, New York.

Therapeutic Hints.

Seborrhea Oleosa.—Sabouraud advises the following application of sulphur, applied every night for men and once a week for women:

Camphorated spirit,
Tincture of lavender,
Precipitated sulphur.....of each 10
Distilled water .....to make 100

The lotion is painted on with a small camel's hair brush at night, and the head is washed thoroughly with soap the next morning. A tonic lotion is applied after this. An agreeable lotion recommended by Sabouraud is the following:

Tincture of lavender	20.
Anhydrous acetone	30.
Distilled water	30.
Potassium nitrate	0.50
Alcohol (90 per cent).....to make	300.

This is rubbed in with a fairly stiff brush, the applications being made daily, if possible, and continued for ten minutes in the female and four minutes in the male.—*Journal des Praticiens.*

A Tooth Paste.—Alexander Lowy gives the following formula of a tooth paste to which he has given the name "F.E.I." (first eliminate infection):

	Per cent.
Precipitated chalk (body of paste, cleanser, antacid)	58.75
Glycerin (vehicle)	28.60
Water (vehicle)	5.60
Starch (binder)	1.10
Soap (cleanser, alkalizer)	5.00
Russian mineral oil (vehicle, lubricant)	0.25
Saccharin (corrective, antiseptic)	0.03
Emetine hydrochloride (endamebacide)	0.0015
Thymol (stimulant and antiseptic)	0.015
Menthol (stimulant and antiseptic)	0.3
Oil of eucalyptus (stimulant and antiseptic)	0.11
Methyl salicylate (stimulant and antiseptic)	0.11
Oil of peppermint (stimulant and antiseptic)	0.40
	99.9965

—*The Journal of Dental Research*, ii, 4.

Colic.—For an acute attack in children, ten to fifteen ounces of soap enema, injected slowly and steadily, will usually give prompt relief. Hot flannel fomentations to the abdomen, and a dose of castor oil if the usual cause is offending material in the bowel. If flatulence is the chief feature, give—

℞ Tincture of belladonna.....mℳ ii
Aromatic spirit of ammonia.....mℳ ii
Bicarbonate of soda.....gr. v
Peppermint water, to.....℥ i

M. Sig.: Every six hours for an infant of six months.—"Practical Prescribing and Treatment."

Weak Heart.—

℞ Tincture of strophanthus.....℥ss
Tincture of nux vomica.....℥ii
Compound spirit of ether.....℥iiss

M. Sig. Ten to 15 drops in water every 4 to 6 hours.

Medical History.

BOOK MAKING "THRU MILITARY CHANNELS."

"THE MEDICAL DEPARTMENT OF THE UNITED STATES ARMY IN THE WORLD WAR."

By LOY McAFEE, M.D.,

WASHINGTON, D. C.

ASSISTANT EDITOR-IN-CHIEF, "THE MEDICAL DEPARTMENT OF THE UNITED STATES ARMY IN THE WORLD WAR."

WHEN an advance copy of the first printed volume of "The Medical Department of the United States Army in the World War," familiarly known as the medical and surgical history of the war, was forwarded by the public printer to the Historical Division of the Surgeon General's office, just before the Christmas holidays, the members of the division could hardly determine whether they were the donors or recipients of a Christmas present. Whichever way the receipt of a copy of "Army Anthropology," which is Part 1 of Volume XV, on Statistics, might be interpreted, we heaved a sigh of relief as at last we could offer some tangible evidence of our labors. For the bringing out of a book or a series of books "thru military channels" is a far more complicated matter than is the accomplishment of the same feat in civil life. Because of these difficulties and differences it is believed that the readers of the MEDICAL RECORD may be interested in a sketch of the *modus operandi*.

When boxes and bundles of records began pouring into the Surgeon General's office from overseas and from the home territory toward the latter part of the war period, the historical division, then the historical section of the museum and library division of the Surgeon General's office, became one of the most active agencies in the office. A tentative outline of the proposed history, covering fifteen volumes, had been drawn up, and historiographers had been delegated for many of the subjects involved, men with first-hand knowledge of the events to be chronicled being selected insofar as this was possible. Demobilization had not begun, and the majority of the medical officers who were approached on the subject manifested interest and willingness to cooperate in the compilation of the permanent record of the part taken by the Medical Department of the Army in the war. One medical reserve officer, a member of the staff of the Historical Division at that time, talked quite enthusiastically and confidently of having the entire history on the bookshelves in a year and a half or three years, at most, from the armistice. Nobody actively connected with the Historical Division has been idle, and yet the end of the third year after the armistice finds one volume or book, which happens to be the first part of the last volume on the schedule, actually ready for distribution. Evidently haste, in the usual interpretation of the word, has been impossible. Why?

Congressional Appropriation Necessary.—Members of Uncle Sam's great establishment, from high executives to messenger boys, watch for the pronouncements of Congress with reference to appropriations for keeping the complicated machinery moving. The Historical Division of the Surgeon General's office was no exception to this rule. We might collect, analyze, and classify tons of historical records, but without the necessary appropriation by Congress everything would have to be marked "file," and then forgotten. For the appropriations for the Medical Department, "at large," or otherwise, were not available for use in printing and binding the history of the part played by this department in the war. Fortunately for the annals of military medical history, the Congress was not unmindful of the importance, not only to the Medical Department of the United States Army, but to the medical profession in general, of the printed and permanent record of the splendid achievements of the Medical Department in the greatest war the world has ever known. One may read, therefore, in the *Congressional Record* of June 1, 1920, the following:

> Conferee's report to the Senate, on the Sundry Civil bill, amendment No. 40, page 8695. The House recedes from its disagreement to the amendment of the Senate No. 40, and agrees to the same with an amendment as follows: In lieu of the matter inserted by said amendment, insert the following:
>
> "Medical and Surgical History of the War with Germany; toward the preparation for publication under the direction of the Secretary of War of a medical and surgical history of the war with Germany including printing and binding at the Government Printing Office and the necessary engravings and illustrations, $50,000; Provided that the total cost of such history shall not exceed $150,000, and the Senate agrees to the same."

Amendment No. 40 appropriated $50,000 instead of $75,000, as proposed by the Senate, and was agreed to by the Senate. The Historical Division, fortified by the approval of Congress, expressed in this appropriation, could proceed with renewed interest and determination.

Effect of Demobilization.—In the belief that an appropriation would be made in due time, the Surgeon General fostered the work on the history throughout the period of demobilization. The armistice, as all know, was followed by a rush for home by all medical reserve officers who could secure their discharge. Many of these men had first-hand knowledge of the actual events which were to be recorded in the history. Once discharged, they were no longer subject to command from the Surgeon General, and, while their interest in the history may have been no less keen, their desire to re-establish themselves in their respective civilian fields of activity was impelling. Furthermore, once out of the military atmosphere, and at a distance from the central machinery through which the history had to pass in the making, and from the mass of records which might or might not be useful in the given instances, but which should be examined, nevertheless, the delegated authors of sections, whether members of the Reserve Corps, discharged, or of the Regular Medical Corps, detailed to other duty, were seriously handicapped. Haste, under such circumstances, was and is virtually impossible. With the splendid cooperation of the temporary officers who, in the midst of their busy lives as civilian practitioners, have cheerfully responded to calls upon their time and thought, and with the help of the members of the Regular Medical Corps who, "in addition to their other duties," have rendered the assistance demanded of them, these difficulties are being overcome gradually, and with results favorable to the eventual satisfactory com-

pletion of the task, within a time limit which the circumstances warrant calling reasonable.

The Historical Division, as well as the Surgeon General's office and the Medical Department as a whole, experienced difficulties incident to demobilization and change of station or duty. The historical administrative machinery was set in motion in August, 1917, by War Department Special Orders No. 196:

A board to consist of Colonel Champe C. McCulloch, Jr., M.C., and Major Fielding H. Garrison, M.R.C., is appointed to meet in this city for the purpose of collecting and preparing material for a medical and surgical history of American participation in the present European war. The officers named will perform this duty in addition to their other duties.

By another paragraph of the same orders Captain John S. Fulton, M.R.C., was made a member of the board.

Colonel McCulloch, then librarian of the Surgeon General's library, was the first executive officer of the board. He was succeeded by Col. Paul F. Straub, M.C., who was followed by Col. Francis A. Winter, M.C. With the reorganization of the Surgeon General's office which followed the armistice, the Historical Board, which had become the Historical Section of the Museum and Library Division, became the Historical Division of the Surgeon General's office, and was thus completely separated from the Museum and Library Division. Major Garrison (now lieutenant-colonel in the Regular Medical Corps) has continued in active connection with the history work, first as a member of the staff of the division, and later as a member of the editorial board, the advisory board of the Historical Division. Captain, later Lieutenant-Colonel Fulton, returned to civil life after the armistice. Lieut.-Col. Casey A. Wood, M.R.C., who was actively connected with the board, and later with the division, also returned to civil life, retaining his connection with the history as a member of the editorial board. In August, 1919, Col. Charles Lynch, M.C., was made editor-in-chief of the history, and executive officer of the division, in which capacities he continues to serve. The majority of the chiefs of the various divisions of the Surgeon General's office, who, by virtue of this position, were largely concerned with the initial work connected with the part of the history represented by the particular division, have been demobilized or detailed to other duties.

This necessary shifting of the military personnel has not tended to heighten the continuity of effort, or to lighten the task of the Historical Division. Finally, however, the division reached an "even keel," with the following editorial personnel: Col. Charles Lynch, M.C., editor-in-chief; Loy McAfee, M.D. (formerly contact surgeon, U. S. Army), assistant editor-in-chief; Col. Joseph H. Ford, M.C.; Lieut.-Col. Frank W. Weed, M.C.; Lieut.-Col. Samuel J. Morris, M.C.; Second Lieut. Frank J. Steiner, Medical Administrative Corps, and Mary Pearson McKnight, Contract Surgeon, U. S. Army. The remaining personnel of the division consists of two draughtsmen and ten clerical and other assistants. The editorial board, as at present constituted, includes the following members, in addition to the editor-in-chief and the assistant editor-in-chief:* Col. Bailey K. Ashford, M.C.; Col. Frank Billings, M.C.; Col. Thomas R. Boggs, M.C.; Col. George E. Brewer, M.C.; Col. Roger Brooke, M.C.; Col. W. P. Chamberlain, M.C.; Col. C. F. Craig, M.C.; Col. Haven Emerson, M.C.; Brig.-Gen. John M. T. Finney, M.D.; Col. J. H. Ford, M.C.; Lieut.-Col. Fielding H. Garrison, M.C.; Col. H. L. Gilchrist, M.C.; Brig.-Gen. Jefferson Kean, M.D.; Lieut.-Col. A. G. Love, M.C.; Col. James F. McKernon, M.C.; Col. C. F. Morse, M.C.; Col. R. T. Oliver, D.C.; Col. Charles R. Reynolds, M.C.; Col. Thomas W. Salmon, M.C.; Lieut.-Col. G. E. de Schweinitz, M.C.; Col. J. F. Siler, M.C.; Brig.-Gen. W. S. Thayer, M.D.; Col. A. D. Tuttle, M.C.; Col. William H. Welch, M.C.; Col. E. P. Wolfe, M.C.; Lieut.-Col. Casey A. Wood, M.C.; Col. Hans Zinsser, M.C.

Requirements of the General Staff.—In January, 1918, Gen. Tasker H. Bliss, the chief of staff, recommended the establishment within the War Department of an office which should devote its activities to military historical matters. Shortly thereafter an officer was detailed as chief of the Historical Section of the War Plans Branch of the War College Division, General Staff. In June, 1919, this organization became the Historical Branch of the War Plans Division, General Staff. By a further reorganization, in August, 1921, the office became the Historical Section, the Army War College, as which it continues to function.

In addition to its duties in the collection of historical data and in the framing of the outline of a proposed history of the participation of the United States in the World War, the task of passing upon all War Department histories was imposed upon the Historical Section (then Historical Branch) by the following communication, given in part:

April 5, 1920.

From: The Adjutant General of the Army.

To: The Chiefs of all Staff Bureaus, and Chief, Historical Branch, War Plans Division.

Subject: Unification of historical publications.

In order that historical publications prepared by the several services, departments and corps may be unified and fit into some general scheme, and to prevent duplication and to assure that the important activities of every service during the World War are made of record, the following general plan of historical publication is announced.

General Plan
for
All Services, Departments and Corps
of the War Department
For the Preparation of Historical Publications.

1. *Basic Principles of Plan.* All historical publications will be supervised by the Historical Branch, War Plans Division, General Staff.

Publications prepared by the services will be, first, those of a general character, giving an outline of a service with all its activities. Following these will be more specific papers dealing with particular activities, giving detailed information on a subject only generally referred to in the previous paper. This will insure a progressive program and one making information available in the quickest time and following a natural and logical order.

Historical publications relating to the technical activities of a service from the point of view of the service itself will be prepared by the Service Historical Officer [the Editor-in-Chief in the case in point]. The Historical Branch, in such cases, will be concerned only with the selection of supporting documents and the

*The highest rank held during the World War is used.

form in which the necessary references to such documents appear.

Historical publications relating to activities of services in broader aspects, from an outside point of view, will be prepared by the Service Historical Officer assisted by the Historical Branch.

Historical publications relating to military operations, or the activities back of the lines as affecting such operations, when two or more services are concerned, will be prepared by the Historical Branch, War Plans Division, General Staff, assisted by the Historical Officers of the services concerned.

. . . . . .

3. *Conferences of Service Historical Officers.* After the designation of Service Historical Officers conferences will be held at such time as may hereafter be designated by the Historical Branch, War Plans Division, General Staff. At these conferences the policies and requirements of each service in the matter of historical publications will be presented and a special plan drawn up giving a detailed plan of publication for each service.

4. *Classification of Documents.* Documents in the possession of the various services will be classified as administrative and historical. The former class consists of those that are necessary, or may hereafter become necessary in the administration of the service. The latter class consists of those documents that were originally prepared for historical purposes, or documents originally administrative, which are no longer in use as such. Technical documents will be classified as administrative. If practicable these two classes of documents should be separated; but in any case the Historical Officer should familiarize himself with all historical documents of his service.

. . . . . .

7. *Form of Publication.* To insure accuracy all publications will be based upon existing primary documents when practicable. That this care in the preparation of work has been taken should be made evident on the face of the publication itself by attaching to each paper prepared a list of documents constituting sources consulted and giving the location and brief description of these documents; and to facilitate further study of the subject, references should appear in the body of the work to the particular documents of the source list relied upon as a basis for every important statement of fact or conclusion.

By order of the Secretary of War:

(Signed) H. G. LEARNARD,
Adjutant General.

From this it is seen that the history of the Medical Department, like that of all other War Department bureaus, must be submitted to the Historical Section of the General Staff, and that it must conform to the general requirements, of which No. 7, "Form of Publication," is the most important, and the one which sounded the death-knell of the "Hurry Up Squad."

The words, "primary documents," sound simple enough. In a civilian publication the task imposed by the order to give primary documentary proof of statements made would be easy enough of execution. In medical literature, to be sure, it would prevent the fault into which so many doctors have fallen, of quoting Dr. Jones as having said that Dr. Brown stated that Dr. Smith related that Dr. White reported so-and-so. And to that extent it would certainly make for accuracy, as it does in the military field. The task which this order imposes upon the Historical Division of the Surgeon General's office, however, is far more complicated than anything known in civil life. "Primary documents," from the military point of view (and it must be borne in mind that the medical and surgical history of the war is a military history), are actual official documents, cablegrams, telegrams, office orders (of a given bureau), memoranda, circular letters, War Department general orders and bulletins—in short, any kind of pronouncement of the given War Department bureau (the Medical Department, in the present instance), or of the War Department itself, as well as of other branches of the Government, should these be involved.

When one realizes that the mail and record section of the Administrative Division of the Surgeon General's office, at the peak of the war activity, received, recorded, and filed 177,396 pieces of primary documentary evidence in a single month, one can form some faint idea of the task which confronted the Historical Division when the full import of documentation became clear.

With the professional or technical volumes of the history the documentation is not so extensive as it is with the purely administrative volumes. The Historical Section of the General Staff, furthermore, assumes no jurisdiction over professional matter, further than to see that it conforms to general military usage. "Army Anthropology," with 574 pages of text, has twenty-five references, with five "additional authorities consulted." Most of these references are bibliographic, hence easily obtainable from a library, if not given by the authors. On the other hand, a short section of the administrative history—the history of a division of the Surgeon General's office, for example—may have a hundred or more references, each citing an official paper which started or was otherwise concerned in the given part of the administrative machinery, and which must be located and properly designated in reference form.

Each official paper thus cited serves as a check on the statements made by those who compile the history, and therefore makes for accuracy of detail. Furthermore, the citations make it possible, in the future, for one to find the original documents, should this be desirable for any reason.

No formal orders have been issued regarding certain other requirements of the General Staff, some of which have long applied to military publications, while others have become familiar to the Historical Division of the Surgeon General's office through correspondence or personal contact with the Historical Section of the General Staff.

For purposes of convenience the requirements of the General Staff, together with our own requirements with reference to the set-up of the references and other details, have been formulated by the Historical Division in the following sequence, mimeographed copies of which are available as needed:

1. *Primary documentary evidence* must be used.
2. *Secondary documentary evidence* may be used only when primary cannot be obtained.
3. Every *basic statement* must be substantiated by documentary evidence.
4. Only *historical facts* capable of documentary proof, or facts established by "common knowledge," are to be used.
5. *Personal opinions* (of the historiographer) are not permissible. Opinions of observers, official or otherwise, must be documented.
6. *Criticisms*, as such, are not permissible. If the matter under discussion warrants criticism, the criticism must be stated as historical fact, capable of documentation. For example, the *results* of errors in judgment may be stated as facts; the fact that an error in judgment was made need not be stated—this is left for the reader to deduce. It is not for the military historian

"to fix blame or bestow praise." Neither can be documented.

7. Names and personal statements not permissible unless necessary for purposes of accuracy and clarity, and capable of documentation. "If the name embellishes the history, it may be used; if the history embellishes the name, it must be omitted."

8. A complete reference gives (1) the *document;* (2) the *date;* (3) the *place* of filing.

The *document* must be clearly identified. If a letter, the "to," "from," and "subject" must be stated. If a book, or one volume or article in a "series," the full title, the author, the publisher, the place of publication, must be given, in addition to date, volume, and page, if required. If a magazine article, the title, name of journal in which published, place of publication, year, volume, number, and page. Government publications are to be identified with equal clearness. For example, "Surgeon General's Report" does not answer for "Report of the Surgeon General, U. S. Army."

The *date* includes day, month, year of correspondence; year, volume, number, or month or month and day for monthly and weekly publications; year for books and series of books, in addition to volume and page, if required.

The *place* applies to documents filed, not to books, magazines and non-official publications. As: "On file, Record Room, S. G. O., 024.-13 (Medical Record Division)."

Requirements of the Office of the Secretary of War.—There is in the office of the Secretary of War an important organization known as the Division of Printing and Advertising, which is under the direction of the assistant and chief clerk, War Department, and which has charge of all matters relating to printing and binding and advertising for the War Department and the Army. The Division of Printing and Advertising is likewise the medium of transmission for all communications with the Joint Committee on Printing, Congress of the United States, and the Public Printer upon all matters pertaining to the public printing and binding for the War Department and the Army. This office issues requisitions for printing, without which not even a line of type may be set by the Government Printing Office. And such requisitions for printing will not be issued without the approval of the proper authority. In the case of the medical and surgical history of the war, approval, as we have seen, must be obtained from the Historical Section of the General Staff. Each volume of the history, therefore, in its peregrinations from the editorial office to the bookshelf, must go to the Historical Section, General Staff, for approval; to the Surgeon General's office for the necessary request to the Division of Printing and Advertising of the Office of the Secretary of War; to the Division of Printing and Advertising for a requisition for the printing, illustrating, and binding by the Government Printing Office; and, finally, to the great printshop for formal "jacketing" or entry, and printing.

Requirements of the Government Printing Office.—When the Historical Division reached the point of considering the necessary mechanical details involved, such as type display, it was decided to select sample pages of material already formulated which would show the various styles of matter—solid reading matter, quotations, simple tabulations, complicated and lengthy tables, and matter which would account for at least six different values of headings and sub-headings—and to have these printed in the different types selected. It proved to be no easy matter to select the various types to meet the possible requirements of fifteen volumes, with their one or more parts, covering such a diversity of subjects. When this was finally accomplished, we became aware that it was impossible to have these few sample pages set up without a requisition. It was not necessary, in this instance, to secure the approval of the Historical Division of the General Staff, but all the other steps enumerated above had to be taken before this small amount of printing could be secured. Incidentally, it may be stated, these sample pages of type display were formally approved, as showing the type to be used, by the editorial board, and have been very useful in preparing the manuscript for the printer. For, with the Government Printing Office, more than with private printing establishments, nothing must be left to the imagination of the linotype operator.

With the enormous volume of printing turned out by the big establishment, with day and night shifts of workers, and with the close division of labor, a given job goes through too many hands for the personal-interest element to follow a piece of work from start to finish, as is sometimes possible in other printing places. This may be appreciated when one recalls that the Public Printer, in his recent annual report, estimated that if the paper used by the Government Printing Office during the year were laid flat at a thickness of one sheet it would cover approximately thirty-five square miles, and that if made into octavo books piled one on the other, they would extend five hundred miles into the air. During the fiscal year ending last June 30, 50,000,000 pounds of paper were used for printing and binding, and the total expenditures of the office were $11,111,111. It is easy to see, therefore, that no essential detail may be left unaccounted for or to be taken care of "from memory." Once all these preliminary requirements have been met, proof begins to come fairly promptly and evenly, until the given job is completed.

Present Status of the History.—As previously stated, the original outline of the history provided for fifteen volumes, and this number has been adhered to, being sufficient to cover the major subjects. As the work has progressed, however, it has been found that the material is too extensive to be condensed into fifteen volumes, and that in some instances it will be necessary to divide a given subject into one or more parts, each forming a separate book. On this basis it is believed that the history, as finally completed, will consist of fifteen volumes, totaling twenty separate books, or parts. The arrangement of volumes and parts thereof, subject to minor changes, is as follows: Volume I, Central Administration, United States; Volume II, Organization and Administration, A. E. F. (including hospitals); Volume III, Field Operations, A. E. F.; Volume IV, Sanitation (United States and A. E. F.); Volume V, Finance and Supply (United States and A. E. F.); Volume VI, Hospitals, United States; Volume VII, Posts, Camps, and Ports; Volume VIII, Communicable and Other Diseases; Volume IX, Neuropsychiatry; Volume X, Surgery: Part One, General Surgery; Part Two, Empyema; Part Three, Neurological Surgery; Part Four, Maxillo-Facial Surgery, and Ophthalmology; Part Five, Otolaryngology, Roentgenology, and Orthopedic Surgery; Volume XI, Physical Reconstruc-

tion; Volume XII, Education and Training; Volume XIII, Gas Poisoning; Volume XIV, Dental Corps, Veterinary Corps, Army Nurse Corps, and Air Service Medical; Volume XV, Statistics: Part One, Army Anthropology; Part Two, Medical Statistics.

It is proposed to publish these volumes or parts as they are ready for the printer, irrespectve of volume sequence. Thus the first to appear is Part One of Volume XV. Others will appear as rapidly as the circumstances detailed above will permit.

ARMY MEDICAL SCHOOL.

Seven Centuries of Medicine and Surgery in Montpellier.—On the occasion of the celebration of the seventh centenary of the University of Montpellier, Professor Vires reviewed the history of its medical work, beginning his résumé with the reorganization of medical teaching in the ancient city through a bull by Cardinal Conrad in August, 1220. Christians, Arabians, and Jews were united in the new Faculty. No one knows when medical instruction first commenced but the city itself dates from the VIII century. It was a midpoint between Spain and Italy. There were rabbinistic schools of medicine in some of the Languedoc cities during the IX century, and Spanish Arabs were at a later epoch diffusing the teachings of Avicenna in France. But the Salernitan School in Italy is known to have attracted to it the Christian students of Montpellier at the close of the IX century. It is probable that these men after their return from Salerno laid the foundations of medical teaching in their home city, where they had to compete with the Judæo-Arabs. We are now in position to understand why a consolidation of these factions eventually became advisable in order to found a democratic medical institution. The speaker did not allude to the first three centuries of the new institution, but sketched a picture of it in 1536. The faculty presented a galaxy of great names remembered chiefly today for their botanical and zoological attainments. Most of the socalled "fathers of botany" were alumni of Montpellier. But there was no Botanical Garden in the town until 1593. The great Rabelais next appears on the scene, and all in all he is the most illustrious alumnus.

Professor Forgue gave a résumé of surgical teaching in the faculty. The barber-surgeon guild claimed to have originated in 1098 and classical surgery was first taught in the XII century, in advance of the formation of the University. In 1376 the Pope suspended the teaching of surgery in the latter, so that the master surgeons were for years extramural, but the physicians were allowed to dissect the bodies of condemned criminals. Singular is the omission by both Vires and Fargue of the activities of Bernard Gordon, who put Montpellier on the medical map in the XIII century, but who probably had no affiliation with the medical faculty of the college.

Professor Delmas of the Faculty cites a similar address given by Professor Ranchini, the chancellor of the same body, about 300 years ago, in which he said poetically that Apollo himself, God of Medicine, had retired to the beautiful Narbonnaise city after his mythological activities were over and had presumably inspired the foundation of the medical school. Delmas comments that not Apollo but Mercury, God of Business Men, should have been the deity to settle this vicinity with its strategic situation for commerce. In 737 Charles Martel, having been compelled to destroy the city of Magdelone, erected Montpellier on its ruins as a center for Mediterranean trade. In the tenth century its inhabitants comprised Jews from Spain, Arabs from Africa and Christians from Italy. Some of these aliens were scholars who acted as a leaven upon the ignorance and superstition of the masses. About the year 1000 some of these scholars had a title of "magistri physici." About a century later St. Bernard complimented the city on its learning. While there was no organized medical instruction at this period there was certainly private teaching which culminated in rivalry, certain individuals claiming to be the sole authorized to teach and demanding legal prohibition of others as outsiders. But Guilhem VIII promptly squelched these pretenders and pronounced the field open to all alike. This was in January, 1181. The city had been pontifical land since 1085, but the Church did not establish the medical faculty until 1220. It might not have come to pass then had not the legate Conrad visited the city on business connected with the Albigenses. The conditions which culminated in the creation of the faculty had been serious and had in fact been accumulated for 40 years. As noted above, the creation of the Faculty involved treating the Jewish, Mohammedan, and Christian factions equally, the membership having been divided among the three religions, a liberal policy hardly conceivable at that period.

Meglin and His Pills.—Meglin of pill fame passes in encyclopedic biographies as a fortunate individual, because he is generally ignored altogether, and presumably led an uneventful and therefore happy life. About all that is known of him authentically is his birth in Alsace in 1756, that he succeeded as a medical practitioner in that province, that he analyzed some mineral waters, wrote a book on neuralgia, and died in 1824. But he was also a member of the *Athenée de Médecine de Paris*, and this argues some exceptional attributes. Dr. Leclerc has, therefore, been curious enough to do a little biographic research. He located the volume published by Meglin at Strasbourg in 1816 on facial neuralgia and tic douloureux, a study of which shows that the author was an excellent clinician and therapeutist. He was, moreover, a humanitarian, seeking the relief of mankind from the atrocious pains of tic douloureux. His pills for the latter consisted of equal parts of sublimed zinc oxide, extract of black henbane, and extract of wild valerian. Henbane, up to that time regarded as a useless poison, was first recommended by Storck in 1762, and valerian was employed by Italians as early as the seventeenth century. No one before Meglin had used these remedies for painful affections. Meglin wished to combine a tonic with a sedative action. The pills weighed a grain each, and, beginning with one morning and evening, were run gradually up to 20 a day. In simple and dignified language Meglin hoped that he had made a permanent contribution to the relief of intolerable human pain. History seems to have borne him out, for today his pills are in the French Codex practically unchanged.—*La Presse Médicale.*

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THE MEDICAL TREATMENT OF HYPERTHYROIDISM.

BY S. P. BEEBE, Ph.D., M.D.,

NEW YORK.

THE trend of therapeutics in the last twenty years has been toward specific medication. The increased knowledge of disease and the vast improvement in available therapeutic agencies make such a result inevitable. This development is most marked in the treatment of the infections, and the very notable increase in the expectation of life and diminished mortality rates have been accomplished for the most part by the effective fight against the infections, but the result has been attained more through the methods of preventive medicine than by the improvements in treatment.

In many physical disorders we must deal with complicated conditions in which the direct effect of a single causative agent cannot be demonstrated. In such cases we must plan an entirely different type of campaign. Direct frontal attack with a high powered battery is so much more interesting than siege operations, or even a flanking movement in the presence of an elusive enemy. Surgical removal of the offending gland appears to be a direct specific therapeutic measure in the treatment of hyperthyroidism and has gained wide acceptance. In recent years radiotherapy has attacked the gland directly, and its advocates claim for it effectiveness without the danger attendant upon surgical removal. Both methods are direct assaults upon what seems to be from superficial observation the chief offending structure, but the writer believes they will not be finally established as the best methods for universal application to the syndrome recognized as hyperthyroidism. The technique of the operation has been developed wonderfully in ten years, but the crest of the wave of thyroid surgery has probably passed owing to the increased knowledge of the etiology and pathology of the disease which has complicated rather than simplified the problem. The proper treatment of hyperthyroidism is not entirely settled by surgical removal of a portion of the gland. Much of the benefit from operation is the result of the medical measures instituted before and following the operation, but it rarely happens that the surgeon is by training or experience a capable medical adviser.

During the last ten years medical treatment has improved also. Many suggestions of possible specific therapeutic agents have been made, but the difficulty is that specific methods regard only one phase of the disease. The medical men have not as a rule spoken with the directness that the surgeons have, and many of the books have an astonishing paucity of helpful, useful therapeutic information. For example, in the second edition of Falta's book on "The Ductless Glandular Diseases," forty-seven pages are devoted to a study of Basedow's disease and only four pages to prognosis and treatment, most of which is made up of quotations from other writers giving suggestions as to what might be expected from various types of medical and surgical methods.

Nevertheless, certain definite principles in the medical treatment of hyperthyroidism have been established. In dealing with thyroid disease we have a constitutional defect played upon by a variety of unfavorable conditions, and the medical treatment is a regimen carefully planned to remove all untoward stimuli, nervous, chemical, and toxic, which influence the gland's abnormal activity. Quite naturally the application of these principles to a particular patient calls for a complete study of the actual condition. Neither medical nor surgical treatment will go far toward affording relief unless it is based upon an intelligent analysis of the patient's condition.

Accepting for purposes of discussion Plummer's classification of goiter into three types, colloid, adenomatous, and exophthalmic, we find that the surgeon surrenders all claim to colloid goiter.

In his recent article Sistrunk from the Mayo clinic says: "Colloid goiter is the only type of goiter which disappears under the administration of iodine or thyroxin and should not be considered a surgical condition." This is a large concession, for this type of gland has been removed in large numbers in recent years, and it is a sharp contrast to deal with them solely by the simple administration of iodine. The medical treatment involves other factors than the giving of iodine, but there is evidenced in this statement a marked change in thought.

Our chief interest, however, is with those types classed by Plummer as adenomata and exophthalmic goiter, since in these groups we find the surgeon still maintains the dominant interest. Even in these groups, however, a somewhat more conservative tendency is showing itself. Speaking of the adenomatous goiters Sistrunk says: "Since it is known that these goiters do not produce toxic symptoms at the time of life when they usually develop and that the thyroid gland at that particular time of life is very essential, it seems best to defer operations in young persons." These are wise words and ought to be inscribed on the walls of every operating room. The tendency has been too strong to subject all goiters to operation at the earliest moment they

come for advice. Seen at the time described above, practically all of these patients can be treated successfully by medical measures and all necessity for considering operations at any time will be avoided. Additional experience with the different types of goiters has convinced many surgeons that immediate operation at first sight is not a defensible practice.

Medical treatment does not wait for favorable opportunity or selected cases. The physician cannot refuse his services because the patient is very sick. And the possibilities of medical treatment are now so definite and the relief is so pronounced, that when properly understood and applied by the profession only a small proportion of the patients will ever need to be operated upon. Medical treatment should be preventive as well as curative and the physician should regard every thyroid enlargement with grave concern until it is proven harmless, as the surgeon does every growth in the breast. It is no longer good practice to minimize a thyroid enlargement because the patient is seemingly in good health on cursory observation. Such advice is reprehensible, but it is frequently given.

For the purposes of medical treatment there is small distinction to be made between those types designated by Plummer as toxic adenomata and exophthalmic goiter. It is not the custom to remove a portion of the gland for microscopic section to make a diagnosis. The present writer does not agree with Plummer that these two conditions are radically different in their response to treatment, nor in the type of medical measures that should be employed in their relief.

From the pathological standpoint we recognize different types of kidney disease as: (1) Chronic parenchymatous nephritis, (2) Chronic diffuse nephritis, (3) Chronic interstitial nephritis, (4) Amyloid and fatty kidneys, but where is the clinician who will base his diagnosis and treatment upon these pathological conditions?

The types described by Plummer as adenoma and exophthalmic goiter are those which may be grouped together as toxic goiter. They are not sharply defined unless one chooses to pin the differentiation on one symptom, exophthalmos. From the standpoint of medical treatment they should be dealt with on certain general principles and not by administering one single drug, vaccine, or physical agency. There is no specific for the disease and never will be because its etiology is too complex. Proper treatment is a regime and not the administration of drugs alone. Experience alone enables one to estimate the relative weight of the varying factors in this regime, but if the preliminary physical examination has been sufficiently detailed it will go far beyond the mere determination that the patient has the four cardinal symptoms with an increased basal metabolism. The published reports of case histories giving results of treatment with a variety of agencies as a rule give none of the secondary facts regarding the patient's condition, and from the standpoint of intelligent treatment these are mighty important.

For example, in Means' report from the Massachusetts General Hospital we read the following case history:

> The next surgical case is that of Miss M. D. (Laboratory No. 125, Hospital No. 212,305). She was a woman of twenty-seven years whom I first saw in December, 1916. She had had symptoms of Graves' disease for a year and a half—extreme nervousness, pathologically large appetite, marked sweating, loss of thirty pounds within a year and considerable dyspnea on exertion. She had slight exophthalmos, a very well marked tremor of the fingers, hot moist hands, and a moderate hard symmetric enlargement of the thyroid over which was heard a loud bruit.
>
> A chart accompanying the report shows an increased basal metabolism with correspondingly high pulse rate. Before entering the hospital she had the right superior thyroid artery tied. On entering the hospital she was put to bed. Both pulse rate and basal metabolism dropped rapidly and during the next two months she had two further operations and one x-ray treatment. At the second operation the right lobe and isthmus were removed. Two years later the patient stated she felt well, had been working for two years. She had no clinical evidence of thyrotoxicosis, but her metabolism was still 23 per cent. above normal.
>
> The case is cited to show how the secondary conditions are either overlooked or are considered of no value. I believe this is one reason why medical treatment fails so frequently to produce excellent results. In the case under discussion we know nothing of the possible focal infections in tonsils, teeth, cervix, nasal sinuses, etc. We know nothing of the gastrointestinal conditions and dietary habits that may be all important. Nothing is known regarding the emotional factors. In fact, except for the pulse rate and metabolism determination, we know nothing that may not be learned from a superficial, cursory examination. We are told enough indeed to give a name to the disease, and that can be done at a glance, but unless a more thorough study is made of all the factors underlying the condition the treatment will necessarily be unsatisfactory, and in the present instance except for the rest preceding the operation, treatment was confined to a direct assault on the gland. It is in fact a kind of therapeutic nihilism not justified by the nature of the disease itself, nor by the experience with adequate treatment.
>
> It must be constantly emphasized that the first step in medical treatment is a careful study of the patient, not for the purpose of naming the disease, but to learn if possible what factors have been responsible for exciting an inherently unstable gland into an abnormal degree of activity. We rarely excise the stomach because it has a hyperacid secretion. We try to determine what factors are responsible for the increased activity and remove or correct them. So long as the treatment is confined to a direct assault on the gland by some destructive method it will naturally be unnecessary to make a further study of the patient than the cursory examination which discovers the presence of an enlarged gland with toxic symptoms; but if these patients are to be dealt with intelligently most careful search for all disturbing factors must be made. It may seem trite to continue emphasis on this point, but my experience in the last ten years demonstrates the contrary to be the case and the published reports in almost every instance point to the same fact. Careless examination and one-gun therapy are the common means of treating toxic goiter.

The proper medical treatment of toxic goiter requires observance of the following considerations:

1. Rest; physical, mental, and emotional.

2. Diet; rigid meat-free diet and exclusion of all forms of stimulants such as tea, coffee, and alcoholics.

3. Special study of the functions of the stomach and intestine to relieve intestinal stasis and toxemia.

4. Search for and elimination of all sources of focal and chronic infection.

5. The administration of iodine in small doses over long periods of time, the dose being adjusted to the conditions in each case.

The principles outlined above are fundamental in every case of toxic goiter. In many cases other factors enter and special measures must be applied, but in no case can there be neglect of any of the principles given here if really satisfactory results are to be obtained.

1. *Rest:* There is a unanimous opinion among both physicians and surgeons that hyperthyroid patients improve with rest. In fact some maintain that it is the only medical measure that has any influence in improving the patient's condition. Rest means more, however, than putting the patient to bed. Most cases show some improvement on going to bed, but this is not a constant quantity, and with some patients indeed the disease may be made worse if rest in bed is the only medical treatment. Mental worry and emotional shock must be considered also and the proper kind and amount of rest required cannot be determined unless the physician knows all the factors in the case. It may be necessary to get the patient out of her immediate environment, it may mean removal from a quarrelsome, nagging family circle, it may mean change in social habits or relief from self assumed responsibility. It may not be necessary to so far alarm the patient as to require continuous rest in bed, a method of treatment that cannot be the only measure employed for any extended period. In the last five years the writer has not found it necessary to confine a large percentage of these patients to continuous rest in bed.

For example, just now a young man twenty-five years of age presents himself for advice. He has a well marked exophthalmos, small, uniformly enlarged, hard, shotty thyroid, pronounced tremor, nervous, restless manner, pulse rate 120 with a pounding heart, throb in the cervical vessels, blood pressure 150, hot moist hands, very sensitive skin. He tires quickly and has marked dyspnea and cardiac distress on exertion. He has not slept well for weeks, has lost ten pounds in two weeks although still at work, poor appetite at present, gastric and abdominal distress. Tonsils were removed two years ago. His bowels move once daily, he drinks four to five cups of coffee daily and is a heavy meat eater. For some weeks he has not gone to bed until 12 M. to 1 A. M. He has been at work continuously since he left the army at the close of the war, during which he served without physical defect. He presents a typical picture of exophthalmic goiter, not of especially severe grade, although his history shows that his condition is rapidly getting worse.

How much and what kind of rest does he need? This question cannot be answered from the facts already given. He comes for advice not because he believes himself to be sick with a constitutional disease, but because he believes he has contracted syphilis following exposure four weeks previously. His present state of mind is one of intense worry and panic. He has walked the streets in terror, afraid to return home to his friends and fiancée. He has read much about syphilis in the last ten days, expecting daily the appearance of a rash and has imagined every small skin blemish to be its beginning.

In this case the mental worry has whipped a mild condition of hitherto unobserved exophthalmic goiter into an active state of toxemia. Examination reveals the fact that his fears are unfounded, he has no syphilis and that night he sleeps well for twelve hours. The burden has been removed. His further treatment will not now be discussed, but it follows the above outline. He does not need continuous rest in bed any more than he needs partial thyroidectomy or *x*-ray treatment. In fact to put him to bed continuously for any period would do harm because of the new worries it would cause.

Rest is not a panacea for toxic goiter. It is an essential part of the treatment but it must be adjusted to the patient.

2. *Diet:* Meat free diet, with exclusion of all forms of stimulants, tea, coffee and alcoholics, is necessary. In this regard all forms of flesh food, including fish and fowl, are classed as meat. In a later paper the scientific basis for this form of diet will be discussed, but two or three points of moment may be mentioned.

First.—In toxic goiter we are dealing with a metabolism already heightened abnormally, and the rich protein diet by reason of its specific dynamic action stimulates the oxidation to still greater heights.

Second.—The fundamental metabolism experiments have demonstrated beyond question that a diet rich in carbohydrate and fat is much more effective in protecting the protein of the patient's own tissues.

Third.—Watson's experiments in rats have demonstrated that on an exclusive meat diet the gland develops a decided hyperplasia, with a loss of stored up colloid, and marked evidences of hyperactivity.

Fourth.—Kendall's experiments with thyroxin show that, given alone, it causes no acceleration of the pulse rate, but when given with amino-acids there is marked acceleration. Amino-acids come from protein in the food supply.

Fifth.—The intestinal bacterial flora on a meat diet is widely different from that on a vegetable diet, and most of these patients have a disordered digestion with undue toxin absorption.

Sixth.—Clinical experience shows that the patient does badly on a meat diet. This is no new observation. The fundamental character of Graves' disease has not changed during the years since W. H. Thomson wrote: "Let a patient with a temporary improvement in the symptoms partake heartily of beef three times a day, particularly at night, and immediate relapse will occur. Every one of the characteristic disorders will be as surely aggravated as those of a diabetic upon a free indulgence in starches."

It is useless to give drugs, and various combina-

tions of ductless gland products, psychotherapy, rest, *x*-ray treatment, etc., unless this essential fundamental in treatment is observed, and the patient is put on a rigid meat-free and stimulant-free diet.

3. There must be special study of the functions of the stomach and intestine to relieve intestinal stasis and toxemia.

Much has been said of the intractable diarrhea in Graves' disease. This is not a common event, and is not as a rule difficult to control by treatment with proper diet, bismuth salts, and occasionally a mercurial laxative. A much more common condition is a state of intestinal stasis. With 90 per cent. of the patients that have come under my observation I have found it necessary and desirable to use laxatives to secure from 3 to 5 bowel movements each day. Two grains of calomel once each week followed by a saline is a frequent requirement. The relationship between intestinal toxemia and hyperthyroidism is a most important one. Many writers on the subject have emphasized this fact, but it has not become a part of the accepted medical practice to pay any especial attention to the matter unless an actual obstruction develops.

W. H. Thomson was a keen clinician and he was dealing with a large portion of the truth when he stated, "The proper medicinal treatment of Graves' disease affords one of the most conclusive proofs of the gastrointestinal origin of the malady."

In the cases which have continued in a chronic state for several years, with occasional exacerbations, it is especially necessary to pay very careful attention to the gastrointestinal tract. An *x*-ray examination may and frequently does reveal abnormalities that have been entirely overlooked.

4. There must be a search for all sources of focal and chronic infection and these must be eliminated. The thyroid gland is stimulated by the absorption of bacterial toxins. There is, in fact, much evidence to support the view that the thyroid secretion is one of the most important links in the chain which defends the body against infections.

The writer has repeatedly called attention to the close relation between infections in the nose and throat and the development of hyperthyroidism. The experiments of McCarrison are most conclusive on this point. He has administered bacterial toxins both by mouth and by stomach and finds an invariable response in the gland. The type of pathological changes is dependent upon the virulence and size of the dose and the nutrition of the animal. Certain quotations from his work are most apropos at this point.

"Small doses over long periods act as stimulants to the gland's secretory activity."

"Nutritional factors are of great importance in gauging the action of these toxic substances; what may be a minimum dose for a robust individual may be a maximum dose for an ill-nourished one."

"The changes in the quality and quantity of the thyroid's secretion in this disease are primarily the outcome of the toxic excitation of the gland itself and of the sympathetic nerves controlling its secretion."

The examination of the patient must include a careful and thorough search for infections in teeth, tonsils, adenoids, nasal sinuses, cervix uteri, appendix, gall-bladder, as well as the toxic processes of the intestinal tract. Cases are rare that do not show some infection in these areas and they are habitually overlooked. With respect to the tonsils and adenoids the recent employment of *x*-ray treatment as advocated by Witherbee is an advance of much importance as it enables us to eliminate the infection in these areas without the shock and danger of operation. If no importance is attached to the infections, naturally no careful search will be made for them, and the physical assaults on the gland will continue.

5. The administration of iodine in small doses over long periods of time, the dose being adjusted to the individual case.

In advocating iodine administration to patients with hyperthyroidism the writer is violating a kind of Galenical dogma that has persisted in medicine for many years. In a recent paper I have pointed out the reasons therefor and have described its application to the different stages of the disease. Not all writers on the subject, however, are opposed to iodine administration to these patients. Marine and Lenhart have found no disturbances to follow its use. In isolated cases others have reported benefit. Most of the discussion about the matter is like that of Kendall based on theoretical consideration only.

The writer believes iodine administration is an essential part of the medical treatment. During the last five years I have given iodine to more than 1,100 patients having toxic goiter and have seen very few instances where it did harm. In most of them immediate improvement resulted, and its effects are so decided that there can be no doubt of the iodine need in these patients. No other substance will take its place. The thyroid gland in hyperthyroidism is poor in iodine. The amount varies within wide limits, but from analyses made by the writer on thirty hyperthyroid glands the following contrasting figures were obtained:

Average of 300 normal glands:
Iodine per gram of fresh gland.....0.364 milligrams
Average of 30 hyperthyroid glands:
Iodine per gram of fresh gland.....0.095 milligrams

The thyroid gland cannot be normal in either structure or function unless it has an adequate supply of iodine. If no iodine is supplied as such, then the iodine of the food supply must be relied upon. In the recent report of Marine and Kimball they state, "Iodine should not be given in any frank case of exophthalmic goiter unless the patient can be daily observed, and then it should be administered only in milligram doses." I believe this caution is based upon theoretical grounds and not upon clinical experience. In 95 per cent. of the patients it is safe and desirable to give one drop of the saturated solution of sodium iodide twice daily in the beginning. In terms of iodine this is equivalent approximately to 75 milligrams of iodine in twenty-four hours. Smaller doses are rarely necessary and they are not therapeutically effective. In fully 50 per cent. of the cases of frank hyperthyroidism it is possible and desirable to increase the dose after two to three weeks.

The patient must be kept under observation, and the amount of iodine salts prescribed varies with the patient's condition, but it is small as compared with the amounts prescribed in other conditions.

These five cardinal principles in the treatment of hyperthyroidism cannot be neglected in any case. Other measures subsidiary to these may at times be useful and necessary with certain patients, but they must be recognized as having a subordinate position and their employment must never lead to a neglect of a full study and treatment of the patient with the five cardinal points in mind. To subject a patient to psychotherapy, and overlook badly infected tonsils and teeth, is not good practice nor is it good sense. To put a patient to bed and administer antithyroid serum, while neglecting to correct focal infections and intestinal toxemia, is equally bad practice. When these five principles are intelligently applied there will be little need for going beyond them. Heterogeneous mixtures of ductless gland and tissue extracts will not often find a useful place in this program. In fact medical treatment of hyperthyroidism is not so much an attempted application of the vague generalities and indefinite hypotheses of popular endocrinology as it is an adherence to fundamental principles in taking care of the sick.

116 EAST FIFTY-THIRD STREET.

DIAGNOSIS OF TOXIC THYROID STATES BY A SERUM FIXATION TEST.

A FURTHER REPORT.

BY WILLIAM N. BERKELEY, A.B., Ph.B., M.D.,

NEW YORK.

ATTENDING INTERNIST AT THE GOOD SAMARITAN DISPENSARY.

A SHORT notice of the curious and remarkable fact that the serum of patients with toxic thyroidism will under certain circumstances bind complement, and that the test may prove of diagnostic value was published by the writer in the MEDICAL RECORD[1] last year.

Further work seems to confirm the opinion that the test as a diagnostic resource is distinctly helpful. The technique worked out for me by Mr. John Koopman of the Wassermann Laboratory, New York Department of Health, is as follows:

"The blood of some patients who show symptoms of Basedow's disease binds complement in the presence of an antigen made from normal thyroid glands of dogs or guinea pigs.

"The reaction may be due to a specific thyroid substance which combines with an antibody in the blood of the patient.

"The best method of preparing the antigen which we have been able to find is as follows: The glands are obtained under aseptic precautions as soon as possible after the animals have been killed. Each gland is trimmed carefully, and minced finely with sterile scissors. The whole mass is then ground in a mortar with a measured quantity of washed and sterilized sand and of dry sodium chloride. The amount of sand is of no importance, but the salt should be added in the proportion of 1/10 gram to each gram of gland used; a few drops of 2 per cent. aqueous solution of tricresol are added for each ten grams of thyroid. This mixture is bottled and laid away in the ice box. For use it is made up with distilled water, using 10 c.c. of water to one gram of the original amount of gland. The sand and solid matter are removed with the aid of a centrifuge.

"It is best (but not absolutely essential) to use the mixed glands of five or six dogs (or guinea pigs). As at present prepared, the extract contains much extraneous matter which takes no part in the reaction; if some method of securing the antigenic substance free from all foreign matter could be devised, the specificity would be enhanced. As far as we have gone, we know that the antigen slowly deteriorates, even when kept under the best conditions, and after about three weeks it is necessary to obtain a new supply. Drying instantly spoils its antigenic properties and it does not withstand heating to 50° C. for fifteen minutes.

"The test is set up in the form of a titration, using a constant amount of serum which is not more than one-quarter of the least amount which is anticomplementary. The antigen is used in varied amounts, beginning with an excess and ending with the least amount which can be expected to give fixation. The exact amounts used will depend upon the total volume of the test the worker is accustomed to using. At the same time an antigen control is made with the same quantities of antigen as are put in the test. This procedure will obviate the necessity of putting in a separate titration of the antigen before the test itself is made. The result is indicated by the difference between the quantity of antigen which is anticomplementary of itself, and the quantity which binds complement in the presence of serum. A negative serum with the antigen will often bind less complement than the antigen alone.

"A serum is considered positive when it binds complement in the presence of one-half or less than one-half of the anticomplementary dose of antigen and the smaller the amount of antigen necessary for complete fixation the stronger is the reaction. Fixation is carried out for from four to six hours in the ice box. At the present time the range is short, but with improved methods of preparing the antigen it is hoped the range will become greater.

"Besides tests on human glands and human tumors (*i.e.* thymoid tumors), we have tried the glands of some other animals, namely, guinea pig, bullock, and pig, and we find that only guinea pig glands give results comparable with the dog antigen.

"Much more work remains to be done on fixation results with extracts of true exophthalmic goiters. These are now very hard to get in New York operating rooms, as surgical removal of them has gone out of fashion, and when gotten we have not been able to devise any way of keeping them in fit condition for antigen formation for more than two or three weeks."

The total number of tests, diagnostic and control, amounts now to about 250—upon almost as many subjects. The controls have covered a wide range of ages, diseases, and dyscrasias, except the acute infectious diseases. All the controls were negative except one, which I have previously discussed.[1] The number of thyroid cases is about eighty-five. Of these about twenty-five were chronic or subchronic goiters in which a hypothyroid condition was to be suspected. In only one of these did we get a positive result—due, possibly, to immunological conditions touched on below. Of the re-

maining sixty, fifty reacted positively. In all these the clinical course of the disease seems to have borne out the diagnosis.

The positive tests have run all the way from one-plus to four-plus, and in those cases where we had opportunity to examine the same patient at intervals of six months or a year, the serum test has appeared to keep pace with the clinical course of the disease, the reaction disappearing when the patient had recovered or, as happens now and then, had passed over into a hypothyroid condition. Of the remaining ten cases it is probable that several were true toxic thyroidism, albeit the serum test was negative.

The occasional negative test in a true case is explicable on ordinary immunological principles, though many more cases must be observed before one can be reasonably assured of the correctness of this view.

One case, adult female, in the care of a medical friend in this city, developed the disease with fulminating acuteness. She was suddenly seized with dreadful nervousness, fever, tremor, tachycardia, and exophthalmos, with a small soft thyroid gland. She died in a few days. Her serum was negative.

Another acute case, also a woman, living a few weeks, was negative till a few days before her death, when the serum was two-plus. The explanation here seems to be merely that the patient's system was overwhelmed with toxic material; there was no time for the development of antibody. A similar case in my own practice, seen and tested three weeks after the appearance of active signs of toxic thyroidism, was negative. I have not been able to get another specimen of blood from this patient in order to verify the first test.

The common time allowance for the development of diphtheria antitoxin in horses is from four to six weeks and more; for sheep-cell antibody in rabbits, four weeks; the Widal reaction appears about the third week in typhoid fever, and is sometimes delayed till convalescence. We may reasonably anticipate some similar delay in the case of thyroid toxins in the human body.

On general immunological principles we may also expect that some patients under unfavorable physical conditions will make no antibody at all for a long time, and that again some patients will make such an excess of antibody that it will persist as such in the patient's serum, like the four-plus Wasserman in syphilis, long after clinical signs have disappeared.

This consideration probably offers an explanation of the four-plus reaction in the chronic goiter case mentioned above. This was a school girl of sixteen years from Michigan. She had had an enlarged thyroid since her thirteenth year (probably endemic goiter) with a history of mild nervousness. But at the time she was sent to me (through the courtesy of Dr. J. Perry Seward of this city) she had no such symptoms. Her temperature was 98°; pulse standing, 84; there was no tremor, and her eyes were normally situated in the orbits. Her condition was in some regards more suggestively hypothyroid, and she did well on small doses of thyroid gland, and two grains twice a day of potassium iodide. Six weeks later her thyroid had diminished in size, but the serum reaction was still four-plus.

Evidently, therefore, the serum test, if it is to be really useful in diagnosis, must be considered as a part of the diagnostic symptom complex. It is not necessarily more pathognomonic than *B. diphtheriæ* in the pharynx of a healthy "carrier" is of diphtheria.

The test has been of special value in tobacco (cigarette) poisoning, in cases of thyroid tachycardia without either popped eyes or struma, in menstrual and post-puberty enlargements of the thyroid, and in "spent" cases of exophthalmic goiter. Here the patient often has a permanently damaged and irritable heart, a cystic and nodulated gland, eyes still protruding, and even a tremor, so that a diagnosis of hypothyroidism from clinical symptoms alone is almost impossible.

As a laboratory procedure the serum test must be compared, of course, with other laboratory tests, of which the adrenalin test of E. Goetsch[3] and the basal metabolism test are those at present most in favor.

In respect of the Goetsch test, the evidence is contradictory. L. F. Barker[4] thinks it valuable as a confirmatory sign. Of three medical associates here in New York with some experience of it, two (personal communication) believe it very unreliable, and one even thinks it dangerous. C. H. Mayo[5] declares it "altogether too variable" to justify dependence. A recent report by M. S. Woodberry[6] at the Clifton Springs Sanitarium, in which the test was tried, concludes that an adrenalin injection reacting positively indicates a generally increased excitability of the sympathetic nervous system which may or may not be of thyroid origin. Irene Sandiford[7] injected thirty-nine patients suffering with various disorders of the ductless glands forty-six times with 0.5 c.c. of 1: 1000 adrenalin. There was an invariable increase in the metabolic rate, but no relation was found between the intensity of the adrenalin reaction and the degree of hyperthyroidism or hypothyroidism. Marine and Lenhart[7] tried similar tests on groups of normal and of thyroidectomized rabbits, with similar results.

As to the Marine and Lenhart experiments, it should in fairness to Dr. Goetsch be noted that owing to the number of accessory thyroids in rabbits excision of the large glands may not always materially modify the thyroid metabolism. I do not think, therefore, that the summary dismissal of the adrenalin test on the above grounds in a recent editorial of the *Journal of the A. M. A.*[8] is as yet justifiable. The test requires a much more extensive try-out.

As regards basal metabolism, even an abbreviated bibliography of this wonderful and rapidly growing subject would far exceed the limits of this paper. Metabolic studies have come to stay, and they are doubtless destined to play an important part in the future of therapeutics, and specially in the future of thyroid diseases. Briefly, a large number of determinations with standard apparatus seem to prove that hyperthyroidism is associated with a percentage rise in the basal metabolism of 30 to 100 per cent. Plus and minus variations of 10 to 15 per cent. occur in health. Larger plus variations occur in severe anemias, in leukemias, and in fevers. Cretinism and myxedema show a metabolism of minus 15 to minus 40 per cent.

For the time being the main objections to tests of basal metabolism as a clinical resource are the serious inconvenience and expense of such determinations. It is alleged[11] that the cheaper apparatus is unreliable, and only the standard "open-circuit" machines, costing from $1500 to $3000, should be used. These are not portable, and consequently the test would be limited to a few of the wealthier hospitals in the larger cities, and entirely inaccessible to the general medical public.

All these statements are probably exaggerated, and in any event it is likely that by technical improvements in the next few years they will largely be done away with. More essential objections are fairly summarized by W. S. McCann,[9] who describes the present stage of metabolism work as follows: "Lesions of the thyroid are not the only ones which lead to marked quantitative changes in the metabolism. In the anemias, in leukemias, and in certain of the rare diseases, not to mention the fevers, the metabolism may be greatly increased without any marked thyroid disorder. Diagnosis must depend on other things than a metabolism test. A report of high or low basal metabolism has just the same kind of significance as a high or low leucocyte count. Both may be admitted as contributory evidence." There are already a number of cases[6, 11] reported—possibly very exceptional ones—where the diagnosis of hypo- or hyperthroidism seemed clinically necessary despite the fact that the basal metabolism was not materially altered.

In conclusion, it will be enough to say of the serum test that while experience of it is so far limited, it promises well. It costs no more than a Wassermann, it is easily and quickly done in any serum laboratory, and if the present ratio of positive reactions is maintained, it should, along with other signs, prove to be of distinct value in the diagnosis of one of the most troublesome diseases the internist has to deal with.

What I most hope for it is that, in conjunction with the basal metabolism test, it will finally settle the long discussed and troublesome question whether there does or does not sometimes appear as a clinical entity a true toxic thyroidism in the strict sense of the word; by this I mean a thyroid dyscrasia developing without quantitative change in the normal thyroid output.

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210 EAST SIXTIETH STREET.

THE NEED OF CALCIUM-THERAPY IN TUBERCULOSIS.*

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ONE day in 1918 I came across Fishberg's[1] quotation that Fisac of Spain reported in 1909 that "all workers in lime and plaster of Paris were immune to tuberculosis despite the fact that they live in squalid dwellings and are underfed." Believing that the first step towards discovering the remedy for any particular disease is to find an industry or occupation in which this disease does not exist, Fisac's statement, if true, meant to me that some compound or preparation of calcium would cure incipient pulmonary tuberculosis if used in the most effective manner.

In order to confirm Fisac's findings, I obtained from the U. S. Geological Survey Department a list of manufacturers of lime and plaster of Paris in the northeastern states and asked the managers how many cases of pulmonary tuberculosis they had had among their men. In their replies they stated that no cases of pulmonary tuberculosis were ever noticed among their employes, and further some mentioned the fact that their men were unusually free from coughs and colds, and others volunteered the information that some new men when first taken on had coughs and colds and soon recovered from them. Many of these reports were from physicians employed by these firms.

I received similar reports from the largest plants in Canada, from Manitoba to Nova Scotia; no cases of tuberculosis were ever seen. One of these plants had been running over twenty-five years and another over forty years.

It is highly probable that some of these men who were noticed to have coughs and colds on first being employed, were really in the incipient stage of pulmonary tuberculosis, and they recovered. It is unlikely among such a large number of men taken on to work that a few would not be afflicted with this disease, especially as statistics show that about one per cent. of the population have it.

Wishing to know why the dust of lime or gypsum caused immunity to tuberculosis, I asked a chemist to analyze the air in these factories under working conditions, for I suspected the presence of sulphur dioxide or chlorine or other gas. This chemist was very much interested, as he was a sufferer from phthisis. I quote from his report as follows:

"At neither the lime nor the gypsum plants was there a trace of sulphur dioxide or chlorine to be found. I used a very large amount of air, in fact, sufficient so that one part in ten million parts of air would have been detected. I tried to ascertain if there could be any other antiseptic gases present, but I could not think of any. I imagine that the immunity which you have found to exist in lime and gypsum plants can probably be ascribed to the very finely divided particles of calcium oxide and calcium sulphate found floating in the air."

This immunity is therefore due to the action of finely divided particles of lime and gypsum inhaled

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into the lungs. Lime in contact with water or the moist tissues of the lungs forms calcium hydroxide, which acts as a caustic and antiseptic and is then absorbed. Gypsum is also absorbed. This action appears to be specific in early pulmonary tuberculosis, for some unknown reason, the same as quinine is specific for malaria.

Renon[3] reported in 1906 that in a limestone region in the village of Yonne, where there had been lime-burning furnaces for ten years, among 200 employes, almost all alcoholics, none had tuberculosis. The lime kilns even brought about a dimunition of tuberculosis among residents in the neighborhood.

De Langen[3] reports that pulmonary tuberculosis is not encountered in children in the Dutch East Indies. He states that many native remedies are used, many of which contain lime. It seems, therefore, that calcium acts as an efficient preventive of tuberculosis.

That calcium has healing properties in tuberculosis there can be no doubt. Several observers have noted this. Osborne[4] states that "tuberculous lesions are cured by local deposits of calcium salts. . . . Only about 0.01 per cent. of the calcium of the body is in the soft tissues; it is practically all in the bones. . . . Tuberculous patients need an excess of calcium."

Beasley[5] points out that tuberculous processes in the lungs are quieted by calcium salts, and that autopsies reveal calcium deposits on previously unknown tuberculous lesions. Patients succumbing to tuberculosis show scantiness of these deposits in direct ratio to the rapid progress that the disease has made. He remarks, too, that nature does not attempt to heal other pathological processes in the lungs with calcium salts. This last sentence appears to indicate that calcium is *the* specific for tuberculosis and taking into account the immunity to tuberculosis of workers in lime plants, there is no other conclusion possible.

The fact that healing is effected by calcium is noted by Behan,[6] who states that where there is inflammation of the bone, there is a great deposit of calcium salts in the inflamed area.

The value of calcium is greatest as a preventive of tuberculosis. As mentioned above, men who are underfed and badly housed or alcoholics, do not acquire tuberculosis, provided they work in lime kilns where they inhale sufficient dust of lime which is absorbed. While coal miners almost invariably suffer from asthma, anthracosis, etc., I can find no mention of these conditions among workers in lime and gypsum. These calcium compounds not only do not cause irritation, but are absorbed, which is not the case with coal dust.

The following extract from a chemist's letter appears to confirm my statement that calcium in the food acts as a preventive of tuberculosis. He states that his parents came over to this country from Iceland about fifty years ago. "At that time pulmonary tuberculosis was practically unknown there, in spite of the fact that sanitary conditions were extremely bad and the people very poor. Since then the island has become extremely prosperous and the housing conditions have been immeasurably improved. Yet the people at the present time are dying like flies from tuberculosis. Change of diet is responsible for this condition. Previously it consisted mostly of whole wheat or rye bread, oatmeal, milk, and fish. At the present time the milk is mostly converted into butter and cheese, while the whey, which contains most of the mineral salts, is thrown away. The bread is made entirely of white flour, and instead of drinking milk, they take coffee and tea."

To obtain more information on this subject I wrote to the professor of medicine in Iceland and made inquiries about these statements. He replied that "In the decade 1861-70, tuberculosis was practically unknown. We were not totally free from it, but among some 5000 patients, J. Finsen found only four with tuberculosis pulmonum. In 1911-15, of 1259 deaths there were only 101 from tuberculosis pulmonum. There is no doubt that tuberculosis is far more prevalent now than it was fifty years ago. The food is now richer than before, and the bread is made from rye. The fishing population takes much coffee and is in want of milk, but some of the worst hotbeds of tuberculosis are just the farms, where milk is abundant and food on the whole very liberal. Deficiency of calcium is very unlikely."

This statement seems a contradiction, but the above chemist and Halldorson, whom I quote below, show that the milk, although plentiful, is not consumed as a beverage. Halldorson,[7] a native of Iceland, confirmed the chemist's investigations by stating that in Iceland the people have lived for centuries on some sour milk products, making a kind of junket. As soon as the people gave up eating this sour milk, tuberculosis became a scourge.

In regard to the calcium content of our food, investigators have pointed out that there is an insufficiency of calcium as well as of other minerals, all of which are essential for perfect health. Demineralization of our daily food does not seem to have attracted the attention that it deserves. Sherman[8] has stated that the ordinary mixed diet of Americans and Europeans, at least among dwellers in cities, is probably more deficient in calcium than in any other chemical element.

McCann[9] characterizes our food as "processed, bleached, colored, denatured, degerminated, demineralized, and chemically treated." Foremost among these denatured foods are bread, milk, cereals, and sugar. Whole wheat bread is difficult to obtain, or is not usually eaten, only white bread. The outer part of the grain of wheat has to be removed to obtain white flour, which is practically all starch. The husk contains most of the mineral matter, including calcium, which is discarded.

Nearly one-fifth of the mineral contents of raw sugar is calcium. In the manufacture of white sugar all of the mineral matter is removed. Molasses and refiners' syrup are by-products of sugar and contain practically all of the mineral matter. White sugar will not crystallize unless the mineral matter is removed. It is the calcium which prevents crystallization.

Candies are made from white sugar or glucose, neither of which contain mineral matter. Sugar and candy are therefore demineralized carbohydrates. Statistics show that about eighty-five pounds of sugar per capita are consumed every year in this country. The mineral loss in our daily food from this source alone must be enormous.

The mineral matter contained in milk is also

tampered with owing to improper or inadequate arrangements for transporting or handling milk. Raw milk contains calcium and other mineral matter in natural organic combinations. Pasteurization partially, and sterilization almost wholly destroy this natural state, changing it into salts which cannot be absorbed so readily. Calcium is most readily assimilated from raw milk, raw eggs, raw sugar, fresh vegetables, and fruits.

Milk contains a larger percentage of organic calcium than any other food. Halverson[10] states that one pint of milk contains 0.5 gm. calcium, which is sufficient to maintain the daily calcium equilibrium in an average man. This statement is true in regard to the average healthy man, but we all know that no amount of milk or other food or even drug has any marked influence on the course of tuberculosis, as at present administered. Its value is prophylactic, not curative.

Some observers affirm that deficiency of fresh vegetables increases malnutrition and tuberculosis, as for instance, Selter and Nehring,[11] who reported that as soon as fresh vegetables come into the market, the mortality of tuberculosis drops and it is lowest in the fall. The poorer quality of the food toward the close of winter accounts for the higher mortality in the early summer.

Grenfell,[12] speaking of the inhabitants of Labrador, states: "Consumption is the main enemy of these people, who live here in one of the purest atmospheres in the world . . . and from that in one form or another most of the people die. . . . One out of every three or four deaths on the coast is due to tuberculosis." I am unable to say whether this excessive mortality is due to the absence of acquired immunity or to the deficiency of calcium in the food. Probably both factors are responsible for this deplorable condition.

Not only calcium in the food, but calcium in the soil appears to be a preventive of tuberculosis. Whitney[13] reports that indigenous phthisis is practically unknown in Colorado, but he gives no reasons for this immunity to tuberculosis. However, North[14] reported in 1914 that the calcium content of the soil had a remarkable influence on the incidence of tuberculosis, that humid soils have an average of only 0.108 per cent. calcium oxide, whereas the average of arid soils is 1.362, or more than twelve times as much. Arid States like New Mexico, Colorado, Arizona, and others have an average of over 2.37 per cent. calcium oxide. New Mexico heads the list with nearly 5 per cent. Tuberculosis among the native white population is rare in these States. The dry air laden with dust containing lime is inhaled and the vegetables and fruits contain more lime. It is not as perfect an immunity as is enjoyed by workers in lime kilns, who are *all* immune.

In the treatment of tuberculosis, calcium is needed not only for its healing properties, but also for its alkaline action to overcome the hypoalkalinity or acidosis, which is almost always present. Many authors are agreed that there is a decided acidosis in certain stages of tuberculosis. This is due to the toxemia, the fever and the depletion of alkaline salts. In Pritchard's[15] opinion, all chronic conditions of malnutrition of whatever kind or from whatsoever cause, finally terminate in an acidosis. Forchheimer[16] also states: "There is reason to believe that the backsets to which many tuberculous invalids are prone without apparent cause often find their explanation in a recurring acidosis."

During the past few years I have been using a preparation of calcium for the dressing of cuts and wounds in my office, and I was struck with its remarkable healing properties. In connection with what I have already told you, it came to my mind that wounds could not heal without the presence of calcium. I thought, therefore, that if I could find a place on this globe where there was no calcium in the air or water or food, I was sure wounds would not heal at all, or very slowly. Such an unfortunate locality is Aden at the southern extremity of the Red Sea. Consequently I wrote to the Principal Medical Officer there and asked him if it were true that wounds and fractures do not heal at Aden, owing to the deficiency of calcium. In his reply he stated that: "In Aden, ulcers, edema of ankles, boils, and receding gums are of very common occurrence; further, wounds and ulcers and such like are invariably slow in healing. These symptoms are generally attributed here to the scanty supply of fresh vegetables and fruit. All the drinking water in Aden is condensed, and I am of the opinion that the absence of lime salts, protozoa, etc., is to a great extent accountable for these symptoms, as they are also particularly common on the Red Sea islands and in the lighthouses in the neighborhood."

About the time these letters were written I met the former American consul at Aden and his wife who had both spent a couple of years there. They assured me that wounds and fractures were so slow in healing that the white population so affected left Aden for India or for home.

It appears certain that calcium as heretofore administered has had no decided curative value in the treatment of tuberculosis. The oral administration of calcium salts, or the taking of foods rich in calcium, such as milk, eggs, etc., does not appear to have appreciably improved the patient's condition. Whether this failure is due to the abnormal loss of calcium in this disease or to insufficient absorption of calcium by the tissues, it is difficult to say. Many calcium salts, such as calcium chloride, calcium iodide, etc., have been given intravenously, but they do not appear to be specific; on the contrary they are dangerous, often producing depression and even collapse and irregularity of the heart. The salts of calcium cannot be utilized by the tissues, whether given by mouth or intravenously, as the body does not tolerate a crystallizable substance any longer than it takes to change it or excrete it, for a membrane is permeable to ionizable salts and therefore the salts are excreted as rapidly as possible. Max Kahn[17] gives an excellent résumé on this subject.

Judging from the anatomy and physiology of the lungs there are *only two direct* and efficient ways of treating tuberculosis of these organs. One route is by means of inhalations and the other by intravenous injections. There is *no other road by which to carry medication direct to the remotest parts of the lungs.* By the first method I have used sulphur dioxide only and reported some of my cases[18]. My investigations have shown that practically all men

working around this gas are immune to tuberculosis, and that no ill effects have so far been noted. I do not advocate its use now except in incipient cases. I have had no facilities for employing inhalations of the dust of lime or gypsum in the treatment of phthisis, although it seemed to me that it would be more efficient and ultimately more productive of good than sulphur dioxide on account of the absorption of calcium. It is surprising that since Fisac's[i] report no efforts have been made to treat patients by allowing them access to a lime factory under working conditions. Max Kahn[ii] quotes a recovery from phthisis by the accidental inhalations of the dust of lime, thus there can be no danger in giving this a trial.

In regard to the food, I advise patients to take the ordinary mixed diet, and plenty of vegetables and fruits, milk, and eggs, all fresh and uncooked, and if possible the shells of fresh raw eggs ground to powder. These shells contain a greater percentage of organic calcium than any other substance. The shells of boiled or stale eggs will not do, as boiling or long exposure to the air turns the organic calcium into calcium carbonate ($CaCO_3$) or marble, which is not absorbed.

For over three years I have been using intravenously a preparation of calcium, said to be in colloidal form, made for me by a chemist in New York, which I have found to be most useful. Each dose of 10 c.c. contains: calcium, 0.048; iron, 0.0024; guaiacol, 0.015; sodium salicylate, 0.065; mercurous iodide, 0.0006; iodine, 0.0003; sodium chloride, 0.240. The preparation has been extraordinarily efficient in the treatment of incipient tuberculosis, but I have also used it for all cases showing acidosis or deficiency of calcium. I will report a few cases to show you its action.

CASE I.—R. L. of Great Neck, 23 years, mechanic, came to my office March 17, 1919. Chief complaint anorexia, loss of weight and strength, and dyspnea on exertion. Has had a cough since September, 1918, and sputum has occasionally been blood streaked. Physical signs negative, except for occasional râle at right apex after coughing. Pulse 96. Given intravenous injection. March 23, 1919, felt better and stronger. Pulse 84. Second intravenous injection and instructed how to use sulphur dioxide inhalations. Sputum was not examined, as patient failed to bring it to me. A few days later he went to stay with some relatives in Massachusetts, where he decided to take a rest, but drove a team of horses daily. A month later he returned and went back to work. He kept up the sulphur dioxide inhalations until middle of July, when he told me he had no more cough, no dyspnea, and felt perfectly well. been well ever since. He had a total of nine intravenous injections. He has been perfectly well ever since.

CASE II.—W. T. G. of Great Neck, a painter, 35 years, married, and six children, was sent to me for treatment by Dr. D. C. Byrne of Great Neck. This patient had influenza in October, 1918, which left him very weak. He has had a cough since May, 1919. Came to my office April 13, 1920; had lost flesh and strength, had dyspnea on exertion, and lately had night sweats. The sputum was positive. Had not worked for past ten days, as he was too feeble. Examination showed crepitant râles at both apices, weight 145¼ lbs., pulse 100 at 7 P. M. Was given intravenous injection of calcium and instructed in the use of a tank of sulphur dioxide. April 17 the patient states he went back to work the very next morning after the first intravenous injection, as he felt so fine. Pulse 80 at 7 P. M. April 21, pulse 82, and the patient has gained 3½ lbs. in a week. June 18, pulse 76 at 7 P M., weight 153¾ lbs., has not coughed for a whole week, and is perfectly well. Sputum examined at this time and found negative. No physical signs in chest. He has been well ever since. He had a total of nine intravenous injections.

It was just a matter of luck that these two patients got well. They went back to work far too soon, the mechanic a week after beginning treatment, and the painter the very next day. The latter was working twelve hours a day after a week's treatment, but I was able to stop the overtime work, and reduce it to eight hours. I was not so fortunate in some of the other cases; here are two instances:

CASE III.—A. E. of Great Neck, a laborer and farmer, married, three children. Came to my office February 3, 1920. He had influenza in February, 1919, which left him very weak; later he developed a cough, lost weight, strength, and appetite, and had dyspnea on exertion. Has not been able to work for two months. Sputum was positive. Examination showed crepitant râles at both apices in front in the upper three interspaces and down to the spines of the scapulæ behind. Pulse 100. February 4 and 9, intravenous injections of calcium. February 12, instructed in the use of the sulphur dioxide tank. March 1 was feeling so well that he worked from daylight to 8 A. M. on his farm, then drove a team of horses for a contractor until 4.30 P. M., and worked again on his farm until sunset. I protested, but without avail. March 22, pulse 72 at 7 P. M.; gave third injection. April 12, pulse 64 at 7 P. M. May 31, pulse 70 at 7 P. M.; gave fourth intravenous. July 4, pulse 68, no physical signs in chest. On March 29 weight 152½ lbs.; May 31, 144¼; July 4, 146½. Henceforth he gave up all treatment. I beseeched him to come to my office, but he refused. The loss in weight shows that he was overworking. I saw him at work still early this spring, but about June 21 he had several hemorrhages and passed away rapidly.

CASE IV.—J. B. of Great Neck, 21 years, bloody sputum occasionally since May, 1918; sputum positive, râles at both apices. Hemorrhages on January 28, 1919, a teaspoonful of blood every time he coughed. Temperature 102°, pulse 120 at 4 P. M.; given first injection. Hemorrhage stopped after three hours. Wanted to get up next day. Three days later, February 1, 1919, at 5 P. M., temperature 99°, pulse 100; second injection given. February 3, at 4.30 P. M., temperature 97.5°, pulse 72. February 4, insisted on getting up, as he felt so well. As soon as he was up he went around to see friends and received many visitors. His temperature never went above normal during the next month, but his pulse was always high, in the nineties. He refused to take my advice and rest in bed or on a couch. On March 4, 1919, I gave him the fifth injection, and a few days later he went to a farm up-State to take his own cure, and died about a year later.

CASE V.—A. H. of Bayside, 21 years, single, came to my office May 6, 1921. Had rickets up to three years of age, scarlet fever at five years, which affected her heart and left it with a leaky valve. Cannot play or run or go upstairs without dyspnea. A year ago she weighed 145 lbs., two months ago 126 lbs., now 103½ lbs. She has been ill in bed for the past six weeks with shortness of breath, loss of appetite, loss of strength, and feels very tired all the time; does not sleep well, coughs occasionally. Examination: Pulse 96 and regular, a loud systolic murmur over precordium, loudest at apex, few crepitant râles at both apices and occasional râles scattered throughout lungs, thickened pleura on lower left side in axillary line, winged scapulæ, depression above and below the clavicles. Strong mouselike odor of skin. Sputum not examined, as she neglected to forward it. May 7, first injection, pulse 92 and intermittent, instructed in use of tank of sulphur dioxide. May 10, pulse 68, regular, eats well, sleeps well, and wants to get up; gave second injection. May 13, has only slight cough on getting up. July 4, has been at work in a factory since a week, weight 118¼ lbs., feels well, pulse 104, occasional râle at right apex only; gave third intravenous. August 8, 1921, feels well, pulse 94, weight 125 lbs., lungs clear, still works in factory; did not want injection, as it made her eat so much, but I gave

the fourth injection. October 10, not doing so well, works in factory, often goes to parties and dances at night until 3 A. M.; has begun to cough again. Pulse 104, many râles at both apices, has had no treatment for two months, weight 123½ lbs.

Here is a typical case of a patient going back to work too soon, neglecting treatment and suffering a relapse. The following two cases show the use of these injections for other than pulmonary cases:

CASE VI.—Mrs. Z., 39 years, has had tuberculosis for six years, has cavity at left apex. Uncontrollable diarrhea for five months. After the second injection she had no diarrhea for the next five days that she stayed under my care. She returned to her home, which was in another State.

CASE VII.—Mrs. M. A. P., widow, 24 years, aphonia for seventeen months, night sweats occasionally, fever afternoons, not much cough, few râles at right apex, sputum positive. February 12, 1919, first injection, and given instructions in use of tank of sulphur dioxide. Returned February 17 with sister, and both told me that five hours after the injection the patient used her voice better and spoke some words aloud. This condition lasted until the early forenoon of the next day. Had altogether three injections, and each time this curious phenomenon occurred. She took the sulphur dioxide inhalations faithfully and went back to work six weeks later. I quote from her letter of August 4, 1919: "I felt greatly benefited by the injections; my voice seemed to be more distinct after each injection. My voice has not come back entirely, but I am able to speak much louder now than I did before the injections. I seemed to notice a change almost the same night. Members of my family and my friends noticed the change, too, as before I could only whisper. I have not been able to use my voice for seventeen months. I go to business every day, have not missed a day since I started in April. I am on my feet all day long and am feeling better than I have in two years. A few months ago I was not able to work."

In conclusion I wish to say that I have tried this preparation of calcium in all stages of tuberculosis, but recommend it only for incipient cases where its action is prompt. In the more advanced stages the patients feel better after an injection, but I doubt whether it does them any permanent good. I have always used it in conjunction with sulphur dioxide inhalations except in cases with hemorrhages, where I use it alone. It is a curious fact that this preparation contains iron in an alkaline solution, only about ⅛ of a grain to 10 c.c. I have this information from the analysis by another chemist. Now iron is incompatible in an alkaline solution, for it is always precipitated. Iron can be present in an alkaline solution only in colloidal form. Therefore, this preparation appears to be a colloidal compound, but this statement awaits verification. All salts are rapidly excreted by the kidneys and intestines, whereas colloids are absorbed. This accounts for the extraordinary efficiency of this preparation, for it contains only about ¾ grain calcium to the dose of 10 c.c. The matter now rests in your hands and as Leven" says, "Well studied, well experimented, the medicine that has cured once should always cure."

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RATING LOSSES OF INDUSTRIAL VISION UNDER THE NEW YORK STATE COMPENSATION LAW.*

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THE New York State Compensation Law has been in operation for seven years. Many thousands of industrial accident cases have been adjudged under this law. The Appellate Courts have reviewed hundreds of contested decisions and awards and have made certain rulings which must govern the interpretation of various provisions of the law. Amendments have been enacted from time to time, ostensibly for the purpose of removing difficulties encountered in making awards; but—and I consider this point most significant—the principle which governs permanent disabilities has remained unchanged, and is essentially the same to-day as it was in 1914.

The principle which governs permanent disabilities caused by accidental injuries, bears no *direct* relation to the damage done to the earning ability of the injured person in his particular vocation. A watchmaker is paid compensation for exactly the same number of weeks as an unskilled laborer, when both have suffered an equal reduction of vision. A violinist and a maker of fine instruments are paid for no longer period than a truck driver, for the loss of an index finger. A man in a sedentary occupation gets pay for the same number of weeks, for the loss of use of a leg, as the man who has to climb telegraph posts or walk on elevated steel girders. The compensation is fixed for the limb and the organ which has been damaged permanently, regardless of the resulting occupational handicap the injured person has sustained. In other words, there is no strict application of the economic principle as regards permanent physical impairments.

At the first glance, the schedules for permanent impairments appear altogether arbitrary. They did look so to me, I must confess, till I inquired into the matter further. I learned that while no exact justice was assured to each individual, there was an attempt made to provide for what is called *average* industrial justice. The occupations covered

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by the law in this State include many in which a high degree of skill and corresponding physical efficiency are required, as well as those which make comparatively small demands upon either skill or physical soundness. The schedules incorporated in the law for the compensation of permanent impairments were calculated to represent the losses of earnings experienced by the industrial workers, taking a general average, so far as the State of New York is concerned. In a State where skilled labor predominates to a larger extent than in New York the schedules would have to be correspondingly more generous, if the same principle were applied; and, on the other hand, in a State where the proportion of unskilled labor is greater, the schedules would be correspondingly less generous.

This principle of *average* industrial justice I should like to call, for greater convenience in my present paper, a *general industrial* principle, by way of distinguishing it from the more *specifically economic* principle which governs the compensation laws in most European countries and to some extent also in Canada and the State of California.

There are, in fact, three principles by which permanent losses may be rated:

There is, first, the purely *physical* principle by which the medical examiner determines the degree of damage done, regardless of general or specific economic depreciations.

Second, there is the *specifically economic* principle by which an injury is estimated according to reduction of earning ability, which the individual has suffered in consequence thereof in the pursuit of his chosen vocation.

Third, there is the intermediary *general industrial* principle which fixes the monetary value of normally functioning members and organs of the body as a general industrial asset and rates the sustained physical impairment according to established schedules.

As I shall deal in my present paper more particularly with the rating of permanent reductions of eyesight, and as the law in the State of New York takes no account in this matter of the actual economic losses the injured individual must face in consequence of the physical damage, we shall be concerned here only with the first and third principles. In other words, we have to do here, on the one hand, with the determination of the actual physical impairment, which must be established by the medical examiner, and, on the other hand, with the legal rating of such physical impairment, which is primarily the responsibility of the referees of the State Industrial Board.

Unless we keep in mind these few simple practical facts, when we discuss particular phases of the law and their proper interpretations, we are sure to become entangled in irritating, wasteful and fruitless controversies.

Medical men cannot be expected to be conversant with the Compensation Law, the various changes it has undergone, the court decisions regarding it, nor even the principles upon which it is established. Our particular care is to examine and diagnose accidental injuries and whatever consequences may have resulted from these, and then to report our findings and opinions to the officers charged by the State with the making of awards under the Compensation Law. If we could be permitted to adhere strictly to these lines, and take no account of the legal aspects of the determination of compensation cases, we should be able to confine ourselves to giving straightforward statements of purely scientific findings and then leave the legal interpretation of these findings to the officer or officers whose business is to administer the law.

The rough-and-ready way in which compensation cases are handled in practice has wiped out, to some extent, the lines of division of responsibility which I have suggested. Experience shows that, as a matter of fact, the medical examiner is called upon quite frequently to give not only his scientific findings but to interpret them for the State in accordance with the existing law. That the law has fixed certain principles for such interpretation, which a medical man cannot reasonably be expected to know, does not appear to have had proper consideration hitherto.

It is not my intention to have the line drawn too sharply. Reasonableness is all I plead for.

The question of what percentage of sight an eye has lost as a result, direct or indirect, of an accidental injury is a case in point. All that the oculist, as such, ought to be expected to do is to determine technically the degree of purely physical impairment sustained, using the peculiar means at his command, and then report. Special training, professional practice and keeping step with new discoveries and developments in his particular field, should attach to his findings a corresponding degree of authoritativeness.

On the other hand, if the oculist is required to go beyond the boundaries of his special field of ophthalmology and even outside of medicine, by being asked by a referee or the State Industrial Board, an employer or insurance carrier, to interpret his findings in accordance with the Compensation Law of the State of New York, it must be evident that he should know the legal provisions relating to the loss of use of an eye, as well as the decisions of the Appellate Courts which define how injuries of the eye shall be rated.

The surgeon who reports on the impairment of a finger by amputation is not required to interpret his medical findings in accordance with the Compensation Law. He tells what phalanx or phalanges have been cut off wholly or in part, and the referee decides on the basis of the surgeon's report what percentage of loss the amputation represents. A similar procedure ought to be possible as regards the determining of the percentage of vision lost by an injured eye. It *is* possible.

Let us take first the determination of the purely physical loss of vision experienced by a previously normal eye as result of an accidental injury. In the vast preponderance of cases this loss can be established by the ordinary Snellen tests which supply the most reliable and universally accepted scientific means for this purpose.

To be sure, the Snellen test applies only to central vision or central visual acuity. The fact remains, nevertheless, uncontested that visual acuity is *the practical working vision.* It is the vision most frequently destroyed or reduced by industrial accidents.

The presence of perfect binocular vision need not

be taken into account at all, as the law in the State of New York makes the impairment of it equivalent to the loss of use of one eye.

As regards the field of vision, or peripheral vision, we all know that an accurate estimate of its partial impairment is next to impossible, as a practical proposition. No two oculists would ever agree in their ratings. And mere assumptions are unscientific. As a matter of fact, traumatic impairments of peripheral vision by itself are so rare that it seems unjust to reduce the allowance for the ordinary eye injuries by suggesting that only one kind of sight has been affected. When there is an extremely rare case of destroyed peripheral vision, *then* is the time to take up this matter for special consideration.

The compensation for eye injuries is small at best, especially if we consider that the loss of vision is compensated not by its actual amount, but after the best correction by lenses which the eye will tolerate. As we are assured that the law aims at average industrial justice, we must draw the only reasonable conclusion that payment on the basis of visual acuity was assumed. This conclusion is confirmed, moreover, by decisions of the Appellate Courts.

Prior to July, 1917, the law made no provision for compensation for the permanent partial loss of the use of an eye. Since July, 1917, compensation for permanent partial impairments are provided for.

Furthermore, the percentage of loss of vision which should be considered equivalent to the loss of an eye was not fixed by the Legislature until 1920, and the new provision did not go into effect till May 5 of that year.

It is well to bear these facts in mind in order that we may obtain a clearer understanding of the decisions rendered by the Appellate Courts in a number of contested compensation cases relating to total and partial losses of vision.

For example, on March 13, 1917, the Court of Appeals ruled that 80 per cent. loss of vision in an eye cannot be considered loss of use of that eye. I refer to the case of Boscarino *vs.* Carfagno & Dragonette, Court of Appeals, 220 N. Y., 323. The Court ruled in this case: "If the claimant still has vision in the eye which equals 20 per cent. of normal, he is very far from having lost the use of the eye."

The Commission, after careful inquiry, decided that 80 per cent. loss of vision *ought to* be considered loss of use of an eye, and placed its contention before the Legislature of 1920. After public hearings on the question, the Legislature added to the provision relating to loss of use of an eye, the following, which is in force at the present time:

"The loss of 80 per centum of the vision of the eye shall be considered to be the equivalent of the loss of the use of the eye, and the loss of binocular vision shall be considered to be equivalent to the loss of use of one eye."

The question now arises, what is meant by a "loss of 80 per centum of the vision of the eye?" Here again, unless we want to indulge in more or less fruitless speculation, we do best to consult first the ruling of the Court of Appeals, which deals with the law as it stands.

Reverting to the case of Boscarino *vs.* Carfagno & Dragonette, we note that the Commission which found the claimant to have sustained a loss of 80 per cent. of vision had based its finding on the report of an examination made by Dr. Weeks of New York City, one of the foremost ophthalmologists of the United States. Dr. Weeks reported as follows: "Vision of right eye 20/100ths, not materially improved with glasses. . . . Field of vision normal in extent." Dr. Weeks, as ophthalmologist, finds further that the reduction of central visual acuity, to 20/100ths of normal represents a loss of 80 per cent. of vision, and his finding is endorsed by the Industrial Commission and sustained by the Court of Appeals. What more can we ask than this? It will be noticed that the reduction of working vision to 20/100ths is called 80 per cent. loss of vision, despite the finding that "the field of vision is normal in extent."

There does not appear to be a single case among the many eye cases passed upon by the Appellate Courts, in which any deduction is made for remaining field vision. Central visual acuity, or working vision, is uniformly called vision. Hence the answer to the question, "What is meant by 80 per cent. loss of use of an eye? is —20/100ths. Incidentally, this indicates that the Snellen test has been accepted as the means for measuring vision.

Taking into account the court decisions, the Compensation Law declares in effect that industrial vision lies between 20/20ths and 20/100ths of normal, 20/20ths representing the minimum of normal working vision and 20/100ths the loss of use of an eye.

Now comes the mooted question how to rate permanent *partial* losses of vision occurring between 20/20ths and 20/100ths. If we adhere closely to the lines laid down by ophthalmology we shall have no difficulty. All we should have to do would be to continue to rate 20/40ths of normal as implying a loss of 50 per cent. of working vision, 20/80ths as a loss of 75 per cent., 20/100ths as a loss of 80 per cent., etc., and let those who administer the law do as they please with our ratings.

In the absence of a legal provision declaring how the permanent partial impairments of sight shall be rated, there is ample justification for adhering to the practice which obtained before 20/100ths was made to stand for industrial blindness.

Scientifically speaking 20/40ths means that central visual acuity, or working vision, has been reduced to one-half of normal. One-half means 50 per cent. There is no getting away from this proposition. Professor Fuchs, whose text-book is universally accepted as the ophthalmologists' bible, as well as Docent Carl Lindner, of the University of Vienna, both of whom I consulted in person in the matter, agree that 20/40ths represents 50 per cent. of normal and also that it is scientifically indefensible to inject considerations of peripheral vision or any other factor, in an attempt to minimize the loss of working vision represented by the formula 20/40ths.

The standard text-book on opthalmology to which I have referred says definitely: "If one eye sees an object of a given size at a given distance and a second eye sees the same object at twice the distance, then the visual acuity of the second eye is twice as great as that of the first."

In connection with this established scientific fact it may be interesting to quote an opinion of Dr. Weeks embodied in the Arcangelo case, where he says that "vision of 20/40ths at least is necessary to engage in the orderly vocation of life." I mention this merely to re-emphasize the manifest importance of 20/40ths, which some have tried to belittle to an inexcusable extent.

On the other hand, I concede that looking at the proposition from the standpoint of *industrial efficiency*, 20/40ths represent *less* than 50 per cent. impairment of vision. This is especially apparent when we are called upon by the Law to consider 20/100ths as equivalent to the loss of use of an eye. 20/40ths would now have to be assigned a new rating if the formula is to be brought into harmony with the principle of industrial efficiency by which 20/100ths was declared to be equivalent to loss of use of an eye.

We now have two fixed points to deal with: 20/20ths as representing normal working vision and 20/100ths as representing industrial blindness. The distance between the two points marks the range ascribed to industrial vision. If the intention is that the permanent partial impairments anywhere between the two points shall be rated in accordance with the relation of these impairments to the more or less arbitrarily fixed point of industrial blindness, we shall have to depart from the purely physical standard of rating and proceed along a new line which may be called *industrial efficiency*.

This change becomes necessary because *physical rating* proceeds in constant relation to *normality*, while *industrial rating* takes account of losses in their relation to the point of *blindness*. The latter point is of considerable practical importance and may explain why it is that physical rating and industrial rating of losses do not accord one with the other, generally speaking.

A reduction of vision from 20/20ths to 20/40ths represents a loss of 50 per cent. of normal visual acuity: Industrially the same loss does not represent 50 per cent. of the efficiency of the eye, when taking into consideration that 20/100ths is to be considered total loss of use of an eye. In other words, the physical losses up to and below 20/40ths do not represent a corresponding industrial depreciation.

An intelligent friend who has followed my former discussions of this matter has put the point in this way: "Reckoning from normal sight, impairment of industrial efficiency of sight does not keep pace with loss of visual acuity but drags behind up to a certain point; after that point is reached the loss of industrially efficient sight travels faster than loss of visual acuity."

With a view to finding a solution of the problem of how to rate visual losses occurring between 20/20ths and 20/100ths in a manner to preserve the principle of average justice, from the standpoint of industrial efficiency, I prepared a table some time ago. Arbitrary and mechanical as the table may appear, it does seem to assure an adequately fair rating. The point of industrial blindness having been fixed arbitrarily, the table itself must necessarily partake of the character of arbitrariness. The table is as follows:

	Loss		Loss
20/25ths.....	6¼ per cent	20/65ths.....	56¼ per cent
20/30ths.....	12½ per cent	20/70ths.....	62½ per cent
20/35ths.....	18¾ per cent	20/75ths.....	68¾ per cent
20/40ths.....	25 per cent	20/80ths.....	75 per cent
20/45ths.....	31¼ per cent	20/85ths.....	81¼ per cent
20/50ths.....	37½ per cent	20/90ths.....	87½ per cent
20/55ths.....	43¾ per cent	20/95ths.....	93¾ per cent
20/60ths.....	50 per cent	20/100ths.....	100 per cent

It will be noticed that, despite its mechanical character, the table solves a problem which has troubled fair-minded men considerably, and that is how to compensate more adequately the impairments in excess of what is physically a loss of the first 50 per cent. of normal vision. Economically speaking, the loss of the first 50 per cent. of working vision, implied by the formula 20/40ths, is not as serious as the losses beyond this point. In my table 20/40ths is rated as 25 per cent., leaving 75 per cent. to be distributed for impairments beyond to 20/100ths. The more I study the table, the more I feel persuaded that it meets the requirements of simplicity, common sense and justice.

It is possible that there may be need of a legal provision defining how permanent partial losses of vision shall be prorated, if there should be any doubt whether my table answers the purpose. Such a provision would have to be supplied by legislative enactment.

Now that the present paper has come to a close, it may be proper that I should indicate, in a few words, what relation it bears to my two former papers dealing with the same subject.*

In opening the question of how to rate partial impairments, my insistence was upon the fact that the Snellen test supplies the only universally accepted scientific standard for determining percentages of working vision. Concentration upon this point appeared necessary in order to counteract current indefensible arguments tending to minimize reductions of working vision.

In my second paper stress was laid on two principles on which visual impairments may be rated, to wit, the purely physical and the strictly economic principles. A "middle way" was suggested as a solution. This "middle way" is more fully discussed in the present paper as meeting more directly the conditions to be considered when we deal with eye cases *under the New York State Compensation Law*. The "middle way" suggests the principle of average industrial justice. This principle governs the legal provisions for permanent physical impairments. It is to this principle, therefore, that the rating of such impairments must conform.

*These papers appeared in the MEDICAL RECORD; the first in the number for May 14, 1921; the second in the number for August 6, 1921.

417 FRANKLIN STREET.

The Facial Paralysis of the Painter David.—The illustrious painter David is known to have suffered from this malady. It is even distinguishable in the painter's own portrait of himself in the Louvre. In the portrait by Langlois and in the marble bust by Rude, the palsy is very conspicuous, but, strange to say, affects the left instead of the right side. How could the sculptor and painter have made the same blunder? Could they have both followed a false memory in the absence of the living sitter? It is possible, but not probable. A more plausible explanation seems to be that the paralysis was really right sided and that when David studied his features in the mirror to transcribe them on the canvas he transposed the deformity to the wrong side. But this view has been pronounced inconceivable by La Fontaine.—*Le Progrès Médical.*

BLOOD CLOTTING AND THE CONTROL OF HEMORRHAGE.*

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1. *Introduction and Discussion of Theories of Clotting.*—The great part that hemorrhage plays in clinical medicine and surgery warrants a close study of the means of its control. And, since the clotting of the blood is by far the most important factor concerned in limiting this loss of blood, we will consider the practical aspects of the coagulation question.

It is not necessary for us to review here the various theories that have been advanced to explain the clotting process. They are far too numerous and complex for an article of this nature and may be found well summarized and discussed in text books of Physiology and Physiological Chemistry. We will, however, point out certain important differences that exist between these previous theories and the one used as the basis for our work.

Except for the views of Wooldridge and Nolf, clotting has always been considered to depend on thrombin formation in the blood and the subsequent transformation of the fibrinogen to fibrin by this thrombin. Calcium was considered necessary for the formation of the thrombin, and this process was quickened by tissue extracts. It was not known whether either the calcium or tissue material entered directly into the fibrin formation. Rather, it was thought that they took part only in thrombin production. Tissue extracts were considered by some to initiate thrombin formation, and by others to neutralize the antithrombin supposed to be present. No definite idea of the chemical action of any of the clotting factors engaged in the process was put forth, so that the problem remained hazy and indistinct in spite of all the various theories.

Wooldridge[1] had a much simpler idea of the process. He considered that there were two substances in the blood (*a*-fibrinogen and *b*-fibrinogen) which united to form fibrin whenever the blood was withdrawn from the vessels. The active substance of tissue extracts he found to be similar in composition and action to his *a*-fibrinogen. Any of these fibrinogens that were present when clotting occurred he found bound in the fibrin produced. Each fibrinogen was found by him to be a protein phospholipin compound, the phospholipin being an essential factor in the clotting process. At the time of his death, however, he had not arrived at a clear idea of the chemical nature of the fibrinogen interaction and fibrin formation. Thrombin he considered an end product of the process, coincident with fibrin. He knew nothing of the importance of calcium at that time.

2. *Theory upon Which Our Work Is Based.*—Using Wooldridge's work and ideas as a basis we have arrived at the following view of the clotting process: *Tissue-fibrinogen* (thromboplastin, thrombokinase) the active principle of tissue extracts, is a protein phospholipin compound probably consisting of about 13 phospholipin molecules united to one protein molecule, the union very likely being through the amino groups of the phospholipin molecules and carboxyls of the protein. This leaves an ionizable H^+ (or Na^+) on the phosphoric acid of each phospholipin in the tissue fibrinogen molecule and causes the latter to be negatively charged in neutral solution. *Blood fibrinogen* is also negatively charged in neutral solutions, which means that it, too, ionizes off H^+ (or Na^+) ions. When these two fibrinogens are present together in solution in an ionized state and soluble calcium salts are added in proper amounts, fibrin formation occurs by a replacement of two H^+ (or Na^+) ions (one on the tissue fibrinogen and one on the blood fibrinogen) by a Ca^{++} ion. Thus the two fibrinogens are united into large complex molecules which possess a low solubility and the power of gelation. This fibrin formation is thus analogous to the precipitation of other negatively charged colloids by bivalent metals.

Just as calcium ions are essential for the union of these two fibrinogens, so also is the phospholipin of the tissue fibrinogen. Extraction of this phospholipin by benzene at room temperature, so as to leave the protein fraction soluble, prevents the fibrin formation almost as effectively as does the lack of calcium. Restoration of the extracted phospholipin enables the clotting to proceed. Both the calcium and phospholipin are to be found in the fibrin produced, a part of the phospholipin being impossible of extraction by boiling lipoid solvents whereas, before union had taken place, it was readily extractable by benzene at room temperature. (The evidence in favor of this view of clotting is to be found in a recent paper by C. A. Mills and George M. Guest.[2])

3. *Clotting as a Physiological Process.*—Looking at blood clotting as a physiological process, then, we find that it has become well adapted to fulfil its function to the body, that is, to prevent undue loss of blood from ruptured vessels. The circulating blood contains very little tissue fibrinogen, so that it is able to remain fluid and still contain soluble calcium salts and blood fibrinogen. However, in event of tissue injury with rupture of blood vessels, the escaping blood is immediately mixed with tissue juice and clotting induced. It has been found that those tissues in which hemorrhage is most dangerous possess the richest stores of tissue fibrinogen, so that bleeding there is most quickly controlled. Such tissues are the brain, lungs, kidneys, and the endothelium of the blood vessels. Not only does the escaping blood clot quicker when mixed with the juices from these tissues, but the amount of fibrin formed is much greater and the texture more firm. The additional strength thus imparted to the fibrin plug filling in the opening renders subsequent rupture at that point less likely. The fact that the tissue fibrinogen forms an integral part of the cell cytoplasm, and that the fibrin formed is thus practically continuous with the cell structure also insures a firm anchorage for the fibrin network.

There exists one apparent contradiction to this

*This paper is in the nature of a summary of the work on blood clotting carried out by the author with the aid of George M. Guest, Stanley Dorst, Stewart Mathews, R. N. Speckman, George C. Mynchenberg and Dr. Moritz Petersen. Some of this work is as yet unpublished, but will appear soon.

view of the clotting process as a well adapted protective mechanism. Surgeons everywhere will testify to the seriousness of wounds in the liver substance and the difficulty of controlling the hemorrhage. One would expect to find laid down in the liver cells a very rich supply of tissue fibrinogen, so that the great capillary bleeding in wounds here might be readily controlled, as is the case in the lungs, brain, and kidneys. Actually we do find more of the substance in the liver than in any other tissue. It has the same appearance as that from the lung, but is almost entirely devoid of coagulative action. This is due to the phospholipin fraction, since if its phospholipin be removed by the use of benzene at room temperature, and that from the lung compound substituted for it, then an active coagulant results. Apparently the protein fractions of the lung and liver compounds are similar, the difference being in the nature of the phospholipin. There has been no suggestion put forth yet as to why this difference should exist, leaving the liver but poorly protected against extensive loss of blood through inability to bring on rapid clotting.

4. *Means of Reinforcing the Clotting Mechanism.*—It is evident, then, that the body has a remarkably well adapted mechanism for controlling hemorrhage. However, there are times when we find this normal mechanism insufficient and wish to reinforce it. In such cases, what means should we use? What method would be more in harmony with the plans of nature than merely to increase the amount of tissue fibrinogen to be mixed with the escaping blood? And this all the more since this substance is the strongest blood coagulant known. In this way no foreign material is introduced into the clot and the transformation into scar tissue should proceed most rapidly. These facts have been recognized for several years in the use of brain extracts for local application, although the true nature and manner of action of the active principle was unknown. It was thought that the cephalin of the tissue extracts was responsible for the activity, so this substance was used to some extent as a hemostatic, but with little success.

The addition of further tissue fibrinogen to the escaping blood is advisable, but it should not be added in the form of crude tissue extracts because these contain in addition albumins which are toxic to the body. It has been shown[3] that tissue fibrinogen has no toxic effect on the body unless clotting of the blood is induced. The albumins, however, possess a histamine-like action in every case and are quite toxic. The use of the purified substance is therefore indicated, especially since its ease of preparation renders it almost as accessible as the crude extracts. We have found the clotting process to be very similar in different species of mammals, so that we may use the tissues of other mammals (such as sheep or calf lungs or brains) in preparing the tissue fibrinogen for use in clotting human blood. In our own experimental work we have found that the lungs yield the most potent product and that this is capable of greater activation to increased effectiveness by cephalin addition than is brain extract. This activation by cephalin was described in a previous publication.[4]

5. *Indications for a Reinforcement of the Clotting Process and Methods to Be Used.*—We have yet to consider the conditions that call for a reinforcement of the clotting mechanism of the body. The one most frequently met with is, of course, hemorrhage from an open wound whether accidentally or surgically inflicted. Here the need is for the strongest and most concentrated coagulant preparation possible, since it is bound to be diluted by the outcoming blood. The flow of blood should be checked as much as possible while applying the coagulant so that the fibrin plugs may extend well back into the ends of the ruptured vessels. What is desired is clotting in the quickest possible time with the formation of a firm, well anchored fibrin plug. The effect here is purely local, practically none of the coagulant being absorbed from the raw surface.

For hemorrhages that are not accessible for local application of the tissue fibrinogen recourse must be had to a different method of treatment. We have tested out the effects of intraperitoneal and subcutaneous injections of the coagulant on rabbits, dogs and rats, and find that the clotting time of the blood may be greatly shortened with apparently no danger of intravascular clotting. The blood becomes so readily coagulable that it is difficult to obtain a sample of blood from a rabbit's ear for testing. *Great care must be exercised, however, to avoid injecting the substance directly into the circulating blood as there is very great danger of immediate death from intravascular clotting.* We are now engaged in testing out the possibility of rectal adminstration in order entirely to avoid this danger and also to eliminate the necessity for a strictly sterile product. This systemic effect from internal administration would be particularly adapted to concealed hemorrhages and post-partum bleeding following childbirth. It might also serve a very useful purpose if given just before surgical operations, as the blood would thus be rendered much more coagulable and the oozing of blood onto the field would be considerably lessened.

The last and most interesting condition in which tissue fibrinogen will probably prove of value is hemophilia. The true cause of this condition in certain individuals is unknown, but it is very suggestive to note that in all cases this blood clots as well as does normal blood when tissue extracts are added to each. Whether the tissues of the hemophiliac individual are devoid of active tissue fibrinogen so that the escaping blood fails to receive this stimulus to coagulation, is a question that can be answered only when such tissues are obtained for examination. So far we have not had this opportunity. We are now engaged in trying out the internal administration of the coagulant to hemophiliacs in the hope of reducing their clotting time at least to within the limits of normality, and lower if possible. If this is accomplished, then surgeons need not fear to operate on these individuals when the need arises. A preliminary treatment with the tissue fibrinogen and a supply on hand for local application should render such operations safe so far as hemorrhage is concerned. Furthermore, the internal hemorrhages to which these patients are at times subjected, should respond in like fashion to the treatment with the coagulant internally.

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THE NEUROPATHOLOGY OF NEURASTHENIA.

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THE title of this paper is probably misleading in that the purpose of the article is rather to point out what is not neurasthenia, and how processes simulating this syndrome can be separated therefrom. When Beard first described this disease he specifically drew a picture of "nerve fatigue," and subsequent workers in the field have consistently held for this definition. Yet the medical profession and the layman have made it the rubbish heap for neurological processes that they did not understand, or for the various neuropsychic manifesations that did not fit into definite diagnostic pigeonholes.

True neurasthenia must be limited to true nerve fatigue, the cardinal symptom of which is weakness, both in the psychical and physical fields. It can be sharply divided into two great groups: (1) Acute Neurasthenia, and (2) Chronic Neurasthenia.

The former type comes on suddenly as the result of some severe trauma, physical or psychic, upon an individual who is of neuropathic makeup, usually of an hereditary type. Given such an individual, let us suppose that he sustains a severe trauma, especially one in which he has time enough to see the oncoming catastrophe, or let him be suddenly subjected to a severe bereavement, or some great financial loss or other psychic trauma, he collapses, great psychic and physical weakness ensues. He complains of headaches, his thoughts will not follow his logical commands, there is great muscular weakness, ideomuscular reactions are abnormal. He says he is tired, that he cannot do things. This is the true picture of neurasthenia and must be sharply and definitely separated from the picture of a neurosis. What has occurred in such a case? What is the pathologic picture? It is impossible to state definitely, but the following hypothesis will explain the clinical symptoms present: The individual has an unstable neural balance, the synaptic relation between cells is extremely delicate, of a hairspring trigger type. The cells themselves are highly irritable. In every day life these individuals are recognized as eccentric and peculiar. Comes the sudden trauma, and with it comes the dissolution, temporarily, of delicate synaptic relations, comes a destruction of Nissl's substance, a loss of the material upon which depends all neuroreaction. The result is the development of misdirected impulses, due to the transmission of impulses along new and unguarded pathways. The great weakness is the direct result of destroyed Nissl's substance.

Chronic neurasthenia, on the other hand, is of slower onset. The symptomatology is the same but more gradual in occurrence. Fatigue, great muscular weakness, insomnia are the cardinal symptoms. It is the result of a steady strain continuing over a period of time upon a neuropsychic personality. Pathologically the picture is the same as in the former condition, but the disturbance in synaptic relation and in cell chromatolysis is less sudden and less complete. The outlook is better and under proper treatment one can say, as I have frequently heard Starr state at his clinics, that sooner or later cure is complete.

With this conception of neurasthenia clearly before us, that of "nerve fatigue," let us then examine the various processes that have masqueraded, and still masquerade under that name.

In my own experience the various neuroses are most frequently mistaken for this process. The subject of an anxiety state, of a latent dread, of an unfulfilled wish, all those individuals who suffer from sexual abnormalities, from misplaced affections, and who develop peculiar physical trends, who state that they fear this, that, or the other thing, who cannot sleep, who believe they are being misused by the world, have in my experience been labelled "neurasthenics" when there has never been any neurasthenia present. With these individuals there has been a struggle between the subconscious and the conscious, between the wished for thing and the actuality, and being of poor nervous balance they have succumbed, to a degree, in the struggle. A rather characteristic difference between these individuals and the true neurasthenics is that despite their symptoms they are always able to take care of themselves, in fact are solicitous about their welfare, while the true neurasthenic is too tired to care, he is really ill; the other individual wishes to be ill. There is only one solution for these patients, the mechanism of their condition must be made clear, they must understand it, and once and for all conquer the subconscious desire by a true appreciation of the realities of life. In true neuroses this can, with patience, almost invariably be accomplished.

The failure to cure such a neurosis by the methods suggested should lead the practitioner to seek for other causes that may be at work to the detriment of the patient. Chronic infection should be the first thought. I have seen many mild neuroses kept alive by mild oral sepsis, or, in my own experience more frequently, by a chronic intestinal morbid state. Constipation and intestinal fermentation are frequent. In many cases there is a definite indicanuria present. It is surprising to witness the improvement of these patients under wisely chosen catharsis and hydrotherapy. Opening the emunctories seems to open up mental paths and lead directly to cure.

Again definite physical processes should at all times be examined for. A mild, early tuberculosis is frequently mistaken for neurasthenia. I have seen pernicious enemia, early malignant processes, visceroptosis, and other true physical conditions under treatment for neurasthenia until beyond relief by medical attention and aid.

Thyroid conditions and other endocrine disturbances should never be forgotten. Adrenal asthenia (which I note is now included under the title neurasthenia by careless endocrine workers) is a definite entity, characterized by low blood pressure,

pigmentation, muscular changes, dermatographic changes, and definite reactions to endocrine and blood sugar tests. Early thyroid malconditions can be demonstrated by adrenalin, atropine, and pilocarpine tests associated with studies in basal metabolism. In no instance of socalled neurasthenia should these investigations into the endocrine conditions be neglected. With these examinations a careful study of that system so closely allied to the endocrine, the vagosympathetic, should always be made.

Again the hydraheaded syphilis must not be forgotten. It is truly surprising how often the earliest manifestations of paresis simulate true neurasthenia, and in no instance should the physician be satisfied to make such a diagnosis without a Wassermann test and, if necessary, an examination of the cerebrospinal fluid. I have on a number of occasions been consulted by the members of a patient's family, who told me he was losing a hold on things, that he had severe headaches (especially at night, a very important point), and marked insomnia. They also informed me that he has been overworking, and yet I found a definitely positive Wassermann with early sluggish pupils.

And finally many early psychoses simulate to the uninitiated, neurasthenia. Dementia precox, the depressive phase of manic depressive insanity, rarely the early stages of paranoia, are all mistaken for this disease. But this would not be so if one remembered always the cardinal syndrome, nerve fatigue—not peculiarity of personality, not irritability, not flightiness or other pyschic manifestations. If the picture of neurasthenia is kept clearly in mind, every other type of condition that might simulate it will arouse suspicion just because of the fact that it is different, and so lead to the proper diagnosis.

To sum up, therefore, the following suggestions are offered: (1) Neurasthenia is a definite entity, and must be limited to "nerve fatigue." (2) Many processes are mistaken for it, the most important of which are neuroses, chronic infections and intoxications, true physical disease in its incipiency, endocrine conditions, neurosyphilis, incipient psychosis. (3) Laboratory examinations are essential to the diagnosis. Urinary examinations may reveal chronic intoxications or nephritides. Blood examinations may show infection, lues, or blood sugar and other changes. Cerebrospinal fluid examination may reveal early neurosyphilis.

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THE ADRENALS AND THEIR RELATIONSHIP TO THE PSYCHE.

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PHYSICAL manifestations of a positive nature are no doubt the most convincing evidence which can be presented to the inquiring or skeptical mind. Those of us who have been carrying on as regards endocrine therapy have this convincing evidence presented to us in those various gradations of hypothyroidism which have been treated with thyroid extract and in like manner with those cases of hyperthyroidism which have been treated with ovarian extract. The reduction of constitutional obesity is one of the most striking examples of the former, while the subsidence of the physical phenomena of hyperthyroidism has been well demonstrated in the use of ovarian extract in this latter type of case.

However gratifying the results obtained in endocrine work from a physical viewpoint, let us not in our enthusiasm fail to consider the equally amenable and important psychic aspect of what is proving itself to be the new "Path to India" in our heretofore puzzling clinical pictures which have been tagged neurasthenia, hysteria, and the like, buffeted from one doctor's office to the other, misunderstood, unrelieved, and in many cases becoming at length the victim of the wiles of quackery.

Empiricism has been sent to the guillotine by modern medicine and it is fitting and proper that it should be, yet in the absence of demonstrable facts when we are lacking those definite conclusions so essential as guide posts, are we not compelled by circumstance to recall the empiric shade and follow it into new fields of endeavor where proofs are obtainable only through the resulting response to therapy? That the psychic effect of endocrinology is empiric is an acknowledgment I readily make, yet who can deny in the face of the conclusive evidence that this empiricism is not warranted?

Familiar to all are the nervous phenomena associated with the over active thyroid, conclusive the most skeptical will grant of the intimate relationship of this gland to the nervous system. Is it not quite as logical to conclude that the other endocrines bear a like relationship to the nervous system and the psyche? Assuming that such is the case, and with particular attention being paid the adrenals, I have treated a series of cases with desiccated extract of adrenal cortex with the express purpose of determining whether or not that which is so theoretically sound from the psychic aspect of endocrine study would prove itself therapeutically so when put to the test in those cases so commonly labelled as nervous type, neurasthenic, hysterical in which the prevailing symptom was a marked emotional upset persisting over varying periods of time.

The striking feature of these cases is their similarity of symptomology—fear, depression, obsessions and a general tendency to self-subjection, all of which are associated with adrenal function, characterized each patient. I will cite only those cases in which I believe the most striking results were obtained.

CASE I.—D. O. was a girl of twenty who had concluded that the world held nothing for her, but who hesitated at suicide because of the moral aspect of the act. She was extremely pugnacious and captious, evidence of which she displayed during the taking of her history, resentment being shown at each new intrusion into her affairs. She was easily excited, extremely irritable, and given to fits of depression. Life was a fearsome existence to this girl; at one time it was the dread of physical infirmity, at another the fear of insanity; her attitude toward those about her was one of negativism, she harbored fancied grievances against those with whom she was closely associated, and was entirely lacking in assertiveness and self confidence in dealing with the same. An atmosphere of negative self feeling predominated her psyche and at the time she consulted me she had had the "blues" for the three preceding weeks. Her mental state had been of this trend for the past two years and various types of therapy had afforded her no relief.

The physical examination of this patient revealed nothing except a blood pressure which varied at each new reading, being sometimes high and again very low. She complained of some gastric distress of a vague nature. Her thyroid appeared slightly enlarged and a faint exophthalmos was discernible. The pulse was 101. The chest and abdomen were negative. The reflexes were normal. The blood revealed no abnormalities and the blood Wassermann was negative. The basal metabolism was not determined.

On April 1, 1921, the patient was placed on ovarian extract, gr. 5, and suprarenal extract, gr. 2, t.i.d. Milk of magnesia, drachms 2, night and morning was given to regulate the bowels. It was explained to her that her psychic irritation was due to the action of glands and she seemed to feel satisfied to some degree that her life problems could be solved if this could be corrected. She was instructed to report in one week's time.

On April 9 there was quite a noticeable change in the patient's mental attitude, as she expressed she seemed to have a better grip on things. Her obsessions seemed greatly allayed and she slept better and felt improved physically. Suprarenal extract, gr. 3, was given alone and the marked improvement of her blood pressure commented on.

On April 23, the patient called and her very entrance into the office heralded her changed mentality. There was the evident expression of good will and confidence of the well balanced individual and throughout her conversation an entire lack of irritability or depression. I congratulated her and she beamed gratitude in response. The same therapy was continued.

June 1, 1921. At the present writing the patient is enjoying more contentment of mind than in several years. She expresses and conducts herself in a manner approaching the norm of positive self feeling. She is now employed as a clerk and is carrying out her duties in a most satisfactory manner.

CASE II.—M. D. was a girl of eighteen who consulted me complaining of nervous spells which she had at frequent intervals. She was rather a nominalist than a realist and was given to introspection and retrospection with a strong penchant for poetry and the allied arts. Her greatest annoyance was the fear of physical harm which was greatly exaggerated when she was in a crowded gathering of any nature. The sex instinct was well developed and she was of the gregarious type. The patient dreamed a great deal and her dreams were of a fearsome nature, well remembered and written down in a lucid readable manner when brought to me. Intellectually she was beyond the average. Spells of depression were frequent and usually followed one of her nervous spells.

Physical Examination.—Weight 108 lbs. The teeth were in good condition and the throat negative. The thyroid was evident to the eye and easily palpable on swallowing. The heart was normal in contour and rythm, but was accelerated in rate, the count at the apex being 112 per minute. The abdomen and extremities were negative and the reflexes normal. The pulse rate was 110, and the blood pressure S. 120, D. 90. The urine and the blood Wassermann were negative. The Goetsch test was positive. The basal metabolic rate was undetermined.

Diagnosis.—Thyroid +, Adrenal —.

On April 15, the patient was given ammonium bromide, gr. 10, t.i.d., and seven grains of desiccated suprarenal gland combination with three gains of ovarian extract, t.i.d., and instructed to return in one week.

April 22. The patient sleeps decidedly better and her dreaming is in no wise as bothersome as heretofore. She says she feels more like doing things than before. The pulse is 88 and the count at the apex 94.

June 13. During the interim the same therapy was continued except that after the third week the ammonium bromide was discontinued. The patient's psychic manifestations have entirely disappeared, and no more striking evidence of the change in mental attitude could be illustrated than the fact that she now commutes daily to New York and is unaffected by the crowded conditions prevalent in the public conveyances of the city.

CASE III.—A. P., age 43, consulted me because of dreams of a terrifying nature. Her history revealed domestic incompatibility and a distinct aversion to sexual relation with her husband. She was extremely irritable and given to fits of depression. She disliked company, but was fond of children and expressed great disappointment at not having any.

Physical Examination.—The teeth were in good condition and the throat was negative. The thorax and abdomen were negative. Neurological examination revealed no abnormalities. Blood pressure, S. 149, D. 90. Laboratory Examination.—The urine and blood Wassermann negative. The Goetsch test was negative.

Therapy.—An explanation of her condition was made on an endocrine basis. The patient was put on desiccated extract of suprarenal glands, gr. 5, ti.d., and in a period of three weeks has had complete amelioration of symptoms.

Conclusions.—1. A marked emotional upset is often associated with under activity of the adrenals.

2. Our psychic manifestations of the subconscious are in a like manner closely allied with the suprarenals.

3. Associated with these under active suprarenals there is often an over active thyroid and that condition is readily remedied by administration of ovarian extract.

4. These patients benefit greatly when an explanation of their condition is made on an endocrine basis.

5. We are justified in laying down the foregoing hypotheses and treating this type of patient on an endocrine basis.

Comment as to controls, suggestions, and coincidence has been omitted. It reads as follows:

In some of these cases it may appear that adequate and rigid controls were not maintained or that suggestion as well as mere coincidence was not ruled out. However, I believe that the previous therapy could as well act the part of controls as any others that might be established, and as for suggestion the psychotherapist had his inning with two of the cases described.

Medicolegal Notes.

Medical Expert Should Not Testify to Fact, But Opinion Merely as to Cause of Condition.—A medical witness in a personal injury case, who had cared for the plaintiff immediately after the accident and regularly attended her professionally thereafter for some months, was allowed by the trial court to testify not only that the nervous condition which he discovered could be caused by the blow the plaintiff received, but also that he believed it was produced by the accident. The Michigan Supreme Court has held in various cases that the proper question as to cause of conditions found by a physician was what might have caused them rather than what did cause them, because the latter is a question of fact for the jury, but it has also held, in People v. MacGregor, 178 Mich. 436, 144 N. W. 869, that the distinction is in many cases of doubtful significance. In the present case, it was held of little importance, as the error in admitting the testimony, if any, was not reflected in the verdict.—Cord v. Pless (Mich.) 184 N. W. 427.

Applicant for Life Insurance Suffering from Influenza Held Not in "Good Health."—An applicant for a life insurance policy contracted influenza on the day before the policy was placed in the mails and, before the policy was received, died from pneumonia resulting from influenza. It was held, in an action on the policy, that he was affected with a serious and dangerous disease, which directly contributed to the immediate cause of his death, and therefore, at the time the policy was placed in the mails, was not in "good health" within a policy condition of delivery during applicant's "good health."—Denton v. Kansas City Life Ins. Co., Texas Civil Appeals, 231 S. W. 436.

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THE BRITISH MEDICAL SERVICES IN THE WORLD WAR.

IN the issue of the MEDICAL RECORD for January 7 editorial notice was given of the appearance of the first printed volume of the history of the Medical Department of the United States Army in the World War. There has now been published the first volume* of the Medical Services of the British Army in the same conflict. It is impossible to make any comparison of the two volumes, other than as to size, paper, and other physical properties, because "Army Anthropology," the first volume (not the first in serial number, but the first to be printed) may be said to be technical, whereas the first of the British history (the first in serial number as well as the first to be printed) deals with matters of administration. It comprises 463 pages, including the 356 pages of text, 82 pages of appendices, and 22 pages of index. There are twenty maps, charts, and other illustrations. Because of the character of the paper used for the text, the illustrations are all "inserts." The book is bound in dark green cloth, with back imprint in gold. The full page of abbreviations encountered in the beginning confirms the fears of one who has read other war books emanating from the medical department of the British army, that many of the pages will be found dotted with capital letter abbreviations.

We are reminded in a recent review of two monographs prepared, one by the Historical Branch, War Plans Division, General Staff, and the other by the Statistical Branch, General Staff, and recently published by the United States War Department, the London *Times*, Literary Supplement, incidentally notes the fact that these two branches of the General Staff have no counterpart in England. This being true, those who compile, or prepare for printing, the record of Great Britain's part in the World War are not confronted with certain of the difficulties which the editors of "The Medical Department of the United States Army in the World War" have to deal in the matter of citing documentary evidence of all data, and of keeping the history as nearly impersonal as is commensurate with historical clearness and accuracy. For, as stated elsewhere (MEDICAL RECORD, January 21, p. 130), all of our War Department histories, that of the Medical Department included, must conform to certain requirements of the General Staff. However, we are told in the preface to the present volume that more than 38,000 war diaries, numerous reports from commands at home and overseas, and voluminous administrative medical files from the theaters of war, were registered and filed, and the various subjects and documents containing references to them were indexed in order to facilitate the writing of the history from the available material.

The preparation and scope of the history had to be limited to meet the Treasury conditions, and so only twelve volumes are being prepared. These are apportioned as follows: General History of the Medical Services, four volumes; The Diseases of the War and the Medical Aspects of Aviation and Gas Warfare, two volumes; The Surgery of the War, two volumes; The Hygiene of the War, two volumes; Pathology and Medical Research During the War, one volume; The Medical Statistics and Epidemiology of the War, one volume. The volumes of the general history are written in narrative form, giving the chief features of the medical services in the United Kingdom, in garrisons overseas, and with the expeditionary forces in the various theatres of war during the years 1914-1918, and during any subsequent period in which war incidents of historical interest or importance occurred.

The present volume, the first of the twelve which it is proposed to issue, deals with the medical services in the United Kingdom and in garrisons overseas, with an account of the medical services in the operations against the German colonies in West and Southwest Africa and in Tsingtau. The remaining volumes of the general history will deal with the medical services in France and Italy, in the Mediterranean theatres of war, and in Mesopotamia, Aden, East Africa, and Russia.

It is safe to venture that the part of this volume which will receive the closest study constitutes the first twelve chapters, which deal with the preparation of the Army Medical Service for war organization; personnel and training; mobilization and administration of the medical services; hospital accommodation in the United Kingdom; the reception, distribution, and disposal of sick and wounded in the United Kingdom; the medical examination of recruits; the recruiting and training of personnel for the Medical Services; the supply of medical and surgical equipment and stores; sanitary organization in the United Kingdom; the organization of voluntary aid; demobilization.

The feature which stands out most prominently in the history of the medical service, we are told,

*History of the Great War Based on Official Documents, Medical Services, General History, Vol. I. Medical Services in the United Kingdom; in British Garrisons Overseas; and During Operations Against Tsingtau, in Togoland, the Cameroons, and Southwest Africa. By Major-General Sir W. G. MacPherson, K.C.M.G., C.B., LL.D. His Majesty's Stationary Office, 1921.

is the magnificent and harmonious cooperation afforded by the medical profession throughout the Empire, and by a host of voluntary and other helpers in the work of the Army Medical Service and the Royal Army Medical Corps. "A history of the medical work in the war becomes, therefore, a record not only of the medical services of the regular army, but of all those who worked in it and with it."

SO-CALLED IDIOPATHIC SPLENIC HYPERTROPHY.

By the term idiopathic hypertrophy of the spleen is meant any hypertrophic process primarily arising in the spleen and without any of the usual causes for enlargement of this organ being present. The process usually remaining localized to the spleen, follows a progressive evolution and presents a variable histological structure. Besides the numerous splenomegalias developing during acute or chronic infections such as typhoid, tuberculosis, leucemia, or paludism provoked by cystic or cancerous degeneration, or resulting from a toxic or infectious process of the liver or long standing heart disease, there is a class of chronic splenic hypertrophies—truly idiopathic in nature—having none of the usual etiological factors and whose pathology is still hypothetical.

The external characters of splenic hypertrophy are to be counted among the most characteristic elements of these tumefactions. From the outset the clinician's attention is drawn to the abdomen on account of its deformity, its large size, with broadening of the lower part of the thorax and the development of collateral circulation. The spleen usually acquires considerable proportions; in one case the organ was twenty-seven times its normal weight and size, in others twelve to sixteen times. The spleen occupies the entire left side of the abdomen, passes beyond the umbilicus and often reaches the iliac crest, projecting above the pubic symphysis. Palpation shows that the tumor is firm and resistant with the characteristic notches of the anterior edge of the organ. The area of splenic dullness is easily made out because there is never any ascites at any phase of the process. The liver progressively hypertrophies as well, although in a lesser degree, filling the hypochondrium and occasionally part of the right flank. The integuments are covered by venous arborisations due to circulatory disturbances from compression, the umbilicus projects, the base of the thorax broadens, and the epigastric hollow is effaced. The respiration becomes upper costal in type. The lower limbs are often large, edematous and painful, and frequent cramps are complained of. As the splenic tumefaction develops, serious disturbances of the general health are noted. There are first anorexia, dyspeptic phenomena, and vomiting, followed by loss of strength, difficulty in breathing, palpitations and other cardiac phenomena; the pain at the onset is dull but increases in intensity and occurs in paroxysms excited by walking or fatigue, with irregular quiet intervals during which the patient feels astonishingly well.

The essential characteristic symptoms of this form of chronic splenopathy are, besides the peculiar hypertrophy of the organ, absence of enlarged lymphnodes in all the regions accessible to clinical exploration; the absence of leucemia, the blood examination during the various phases of the process never showing any notable increase of the leucocytes; the red blood corpuscle anemia without changes in the red cells or nucleated cells, and lastly the absence of any peritoneal fluid collection. Besides the consecutive hypertrophy of the liver there are other more contingent signs. In the first place there are hemorrhages, the earlier and most persistent being epistaxis, which is sometimes very severe. Later on, cutaneous hemorrhages occur in the form of purpuric or ecchymotic spots on the legs, while on the face they appear as fine specks more or less confluent. The gums quite frequently are softened, becoming fungous as in scorbutus, bleeding readily and rendering mastication both painful and difficult. A slight or even marked icterus is met with when the liver has become hypertrophied; it is usually only temporary and only gives rise to a pale yellow tint of the skin and conjunctivæ, without bile salts in the urine. Fever is uncommon, but when it exists it indicates some intercurrent affection, such as pleurisy or tuberculosis.

The evolution of the process is progressive and generally slow. The general health remains relatively quite good for some time, slowly declining with the progress of the affection. The normal functions of the various organs are interfered with; the cardiac and respiratory symptoms becoming marked at the same time that the dyspepsia and diarrhea occur. Cachexia or some intercurrent affection carries off the patient. Splenectomy is the only treatment that offers any chance of prolonging life and ridding the patient of his sufferings.

THE POSSIBLE TOXIC ACTION OF RENAL EXTRACT.

Renal opotherapy by subcutaneous injections has been discarded on account of its unfortunate action on the kidneys, and exhibition by mouth seemed to have been preferred until Carles and Michel stated that they had been able to produce nephritis by this means. The untoward results reported by these observers were, however, based upon experiments made under the most unfavorable conditions and consequently should not be accepted. These observers gave guinea-pigs macerations of guinea-pig kidneys and found that the animals developed an epithelial nephritis in about ten days. Now, it is a defective method to administer kidneys to animals when the organs are derived from their own species, while the choice of an herbivorous animal like the guinea-pig is most unfavorable for the study of the action of a carneous maceration, because it may be questioned whether it is the renal tissue itself

that possesses the nephrotoxic properties or the meat alone that produces renal lesions in certain herbivorous animals.

To elucidate this question Arquembourg (Thesis, Lille, 1917) fed a guinea-pig on horse-flesh mixed with the usual food. During the first month the animal's weight remained about the same and its general condition seemed excellent; then, at the end of five weeks albuminuria occurred. The animal then lost weight very rapidly and was killed during the sixth week in order to remove the kidney in the best condition for a cytological examination. Microscopical examination of the pig's kidneys affirmed the existence of pathological lesions. In the glomerular zone, the dilated capillaries increased the size of Malpighi's corpuscles, while in the intertubular connective tissue zones, the capillaries and especially the tubuli contorti presented an appreciable dilatation. The tubuli themselves were the seat of manifest cytological lesions; the epithelial cells did not line the walls regularly and in places the epithelium was completely detached; elsewhere a protoplasmic mass was found representing the dimensions of three or four cells completely deprived of nuclei. Granular protoplasm filled the lumen of some tubuli and its irregular arrangement revealed large vacuoli simulating a network of fine meshes. Briefly, these were lesions of interstitial nephritis provoked by the simple ingestion of meat. It is therefore an error on the part of Carles and Michel to attribute toxic properties to kidney substance, because these properties are common to all kinds of meat ingested by guinea-pigs.

The experimental study of the toxicity of the maceration for the kidney should therefore be made in omnivorous or carnivorous animals. Arquembourg selected dogs for this purpose and gave enormous quantities of renal extract to them. Now, after repeated daily absorption of doses proportionally from seven to twelve times those usually given to man, none of the animals developed albuminuria or disturbances of the secretion of urine.

In subjects with nephritis it may perhaps be admitted that renal extract is susceptible of aggravating already existing renal changes, but in none of the subjects to whom opotherapeutic renal products have been given has any aggravation been noted; on the contrary, a decrease in the albuminuria is usually observed. The possibility of toxicity of pig's kidneys in the case of certain renal lesions cannot be absolutely denied, but it is safe to affirm that this is the exception and that in the generality of cases renal extract has not a nephrotoxic power. Nevertheless, the fact that pig's kidneys eaten as food do not ordinarily provoke or aggravate a nephritis should not lead us to conclude that they are devoid of toxicity for the organism; because renal extract, like all active medication, should be maintained in doses not exceeding certain limits, otherwise accidents are prone to arise. All those who have employed maceration of kidneys have noted gastrointestinal accidents after a certain dose has been exceeded or from too prolonged absorption of the product.

Renaut, the promoter of the method, recommends that the medicament be not given for more than ten days in succession and that there be an interval of rest for five days between each series of ten-day exhibition, otherwise after a time accidents of variable gravity will occur, such as perspiration with an odor of urine, papular or miliary cutaneous eruptions, and gastric disturbance with nausea and vomiting.

REDUCTIVE ANALYSIS.

IN his entertaining novel, "If Winter Comes," Mr. Hutchinson draws a character, Mr. Fargus, who will long be remembered by his readers. Aside from his eccentricities and those of the remarkable household of which he was the nominal head, Mr. Fargus had one pet idea which falls in line with the modern trends of dealing with the psychoneurotic and psychotic patient. When a misadventure happened to him, when he ran into a snag in the current of his daily life, or when things went suddenly wrong, he would begin at that point and retrace events, holding that just as each event was the logical result of everything which had preceded it, the occurrence which had been unpleasant or disastrous must have been the result of a divergence at some particular point from the straight and desirable path.

And is not this what we try to do with those of our patients whose pathology lies in the psychic sphere? We have, let us say, such a patient who has gotten into an emotional jam; he quarrels with his wife, his employer is down on him, his fellow employees ridicule him, and he has thoughts of suicide. Ten years ago, it may be, such a one was newly and happily married, his business relations were pleasant and stimulating, and he sang as he shaved in the morning. Through what concatenation of circumstances did he arrive at his present plight? To discover this we must go back step by step over the emotional life of the patient. We cannot, of course, assume that even in that superficially carefree time of ten years ago there were no indications of approaching trouble. We must go back further still, to his boyhood, to his infancy, and trace the course of his psychic development. What methods of adjusting himself to his environment did he work out during his most plastic and formative years, and why were they unequal to later demands upon them? In short, we must do what might very well be called a reductive analysis. When we have discovered where lies the inadequacy we can turn our attention to the problem of readjustment.

It is all very much like the cynical attitude of Mark Twain's Mysterious Stranger. If the gate had not been left unlocked, the child would not have wandered out to the river and been drowned, but on the other hand he might have lived to become a murderer and break his mother's heart by

some more refined cruelty. Life is made up of a multitude of little events, acting and reacting upon each other. Change one of these ever so slightly and two others are changed. These in turn alter four more, then eight, soon several hundred, and with the passage of a little time the careers of individuals and the histories of nations are written otherwise.

But with all such far-reaching consequences our psychological analysis has but little to do. We can not alter, even if we would, the pattern of so-called chance. We can but take the individual with his eons of race history behind him and his few years of individual development at this time, and seek to find out where and when he went astray from the road which leads to contentment. If reductive analysis enables him to see this path again, struggle towards it, and perhaps regain it, it may be counted a success.

TREATMENT OF SYPHILIS.

THE treatment of syphilis by mercury has held sway for generations, and, on the whole, in the estimation of the majority of the medical profession, still holds the first place in treatment, although arsphenamine is still believed by some to be even more efficacious, at least in certain stages of the disease. Both mercury and arsphenamine are generally credited with the power to kill the *Spirocheta pallida*, although all authorities do not credit these drugs with such properties.

Among these is J. E. R. McDonagh, who ventilated his views in a paper read before the Hunterian Society, on April 13, 1921, and published in the *Medical Press and Circular* of December 25. He claims that mercury was used for syphilis when it first invaded Europe and was confused with scabies, leprosy, or some other skin disease. He believes that, owing largely to mercurial treatment, the type of late syphilis has changed and it is now less a bone and more a nervous disease. He says that arsphenamine also acts in the same direction, changing the character of syphilis, chiefly by increasing the amount of nervous disease. He criticises the belief that arsphenamine exerts a curative action on syphilis. He contends that neither that drug nor mercury acts directly upon the organism, but only indirectly by increasing the host's natural resistance.

Briefly, McDonagh's contention is: (1) That the chemotherapeutic agents cause the symptoms to vanish quicker but bring the cure of the disease no nearer; (2) that the word cure should never be used, as all proof is wanting in any special case that a recurrence will never appear; (3) that each case must be treated individually and for at least two years; (4) that no reliance can be placed on tests at present in vogue for regulating treatment. He believes that treatment, if judiciously administered, increases the individual's resistance, which in many cases probably alone suffices to bring about an apparent cure, though medical men should realize that they can aim only at reducing the incidence of destructive lesions to a minimum. Special stress is laid on the point that this can be brought about only by stimulating and not by destroying the resisting substance, though in the majority of cases being treated to-day, he says, the latter and not the former, is achieved.

TUBERCULOSIS AND PROSTITUTION.

IN lay circles and fiction the prostitute is often looked on as foredoomed to pulmonary consumption, largely perhaps because of the hollow cough sometimes heard in those who have become habitual street walkers. There are, of course, other possible causes of cough, such as exposure to inclement weather, the abuse of cigarettes and alcohol, etc. Doubtless there is statistical backing for the alleged frequency of tuberculosis among prostitutes, but in order to make of it a true occupational disease it would be necessary to show that it accompanied prostitution universally. Quite recently Samson (quoted in *La Presse Médicale* of December 14, 1921, xxix., 100) reports having examined 1,300 of these women in Berlin for evidences of the disease and found about 10 per cent. with active tuberculosis, about half of these being open cases. Of the 130 active cases, two-thirds were in the first stage and the balance in the second stage. The women were chiefly between the ages of 20 and 30 years and the period of prostitution was less than ten years for the oldest habituées. This 10 per cent. of cases, numerically small, is regarded as high, but no control figures for other women of the same age period are given. Among the numerous factors favoring the development of the disease are the venereal diseases, the insanitary life and natural hardships of the calling, sexual excesses, the danger of transmission from men, etc. Strange to state there was no evidence that alcohol played any serious role, for the majority of these women were temperate in that respect. Naturally, if present alcoholism would be an unfavorable causal element. There was no evidence that the syphilis which they nearly all had had exerted an unfavorable influence in precipitating the outbreak of phthisis.

TUBERCULOUS HEADACHE.

IT is now realized that there may exist a simple serous meningitis of tuberculous origin, apparently an abortive form of basilar meningitis which sets up adhesions and obstructs the exit of the liquor from the cranial cavity. This affection is manifested by a headache of a neurasthenic or migrainous type. The patient usually presents a benign form of pulmonary tuberculosis. There is increased endocranial tension which, according to Frisch and Schuler (*Wiener klinische Wochenschrift*, December 15, 1921, xxxiv., 50), may be recognized by the *x*-ray. Lumbar punctates may be normal or may exhibit high pressure, pleocytosis, and increased albumin. In this case the process is acute and the *x*-ray negative, while in that of negative punctate and positive *x*-ray the condition may be regarded as chronic. In addition to direct attack by bacilli and the consequences of adhesion formation, the tubercle toxins are accused in connection

with this type of meningitis. While bacilli have not yet been discovered in punctates the latter fluid has produced positive inoculation. In regard to the positive *x*-ray finds these apparently consist of accentuated *impressiones digitatae* on the inner aspect of the skull, as indicative of increased endocranial tension due to the acquired hydrocephalus internus. Since the same find has been noted in typical migraine the latter may be suspected of having a paratuberculous nature. Serous tuberculous meningitis manifested as headache may be placed in part under tuberculous absorption lesions, such as are seen in various other organs.

News of the Week.

Influenza Deaths in London Increase.—The mortality figures made public on January 20 show no abatement in the outbreak of influenza in the United Kingdom. During the week ending on that date there were 1262 deaths from the disease, an increase of 443 over the previous week, besides 707 deaths from bronchial pneumonia. The aged are particularly affected, the deaths in London, for instance, including 116 persons whose ages ranged between 65 and 75 years. Greater London is still the storm center of the outbreak, 1021 Londoners having succumbed out of a total of 1262.

Plague in Queensland.—With the advance of the Australian summer bubonic plague is reported to be slowly increasing. The Australian *Medical Journal* says that infected rats are to-day spread over 1000 miles of Queensland coast and it warns the people of Australia that "they are entering a period of dire peril."

A New Drug Bill.—Charles D. Donohue of the New York Assembly introduced a new drug bill in that house on Jan. 24. The bill is like the old Whitney law except that no department of narcotic control is provided for. The unauthorized possession, sale, distribution, or administering, dispensing, or prescribing, of cocaine, opium or any of their derivatives, or Indian hemp is forbidden. The drug trade is authorized to deal in drugs along the lines provided by the Harrison Federal law, and physicians are permitted (*permitted!*) to prescribe or dispense narcotic drugs under certain restrictions. Hospitals are authorized to treat addicts, and provision is made for committing patients to hospitals for such treatment. Physicians prescribing drugs must write prescriptions in duplicate, and the apothecary is required to file one of the prescriptions, in cities of the first class, with the local board of health, and in other parts of the State with the State Department of Health. The possession by a layman of a hypodermic syringe is declared unlawful.

Conference of Heads of Government Hospitals.—A five days' conference of the heads of 107 Government hospitals caring for ex-service men held its opening meeting on January 17. Brigadier-General C. E. Sawyer of the Medical Reserve Corps, physician to President Harding, made the opening address in which he stated that President Harding was satisfied with the Government's efforts for the relief of disabled veterans. He believed that cases of injustice that had been reported were individual, and did not reflect upon the general plan for Government relief. To-day there are being hospitalized under Government control, in Federal hospitals, 22,440 World War veterans, who are distributed among the various departments as follows: United States Public Health Service, 16,373; army hospitals, 1681; navy hospitals, 1059; soldiers' homes, 2500; Department of Interior hospitals, 827. This does not take into account patients in contract hospitals, who now number 9066. This enumeration demonstrates something of the scope and nature of the work for which the members of the Board of Hospitalization are responsible. There are now under construction 7592 beds which will be ready for occupancy within the next few months, and that the Government is at present contemplating at least 2500 more beds under the new Langley bill. So ultimately the Government will have under its direct administration hospital capacity for a minimum of 32,000 patients, which is estimated to be the peak of the load."

Immunization Against Diphtheria Among New York School Children.—Dr. William H. Park, director of the Bureau of Laboratories of the New York City Health Department, recently made the statement that with the aid of the American Red Cross, 145,000 children had received preventive treatment against diphtheria. Coincident with this effort to confer immunity against diphtheria it is shown that there has been a decrease in the number of cases of diphtheria and in deaths from the disease. From the latter half of 1920 to the latter half of 1921 the number of cases has been reduced by 1852 and the number of deaths by 155. The cost of 10,722 cases of diphtheria in the first six months of 1921 and of 611 funerals was, at the minimum figure, $581,825. The cost of immunizing a child against diptheria is 25 cents and 1,000,000 school children could receive this protection at a cost of $250,000.

Governor Miller Resents Passage of Sheppard-Towner Bill.—In an address delivered before the annual convention of the New York State Bar Association Governor Miller protested against Federal meddling with purely State affairs, and especially resented the passage of the Sheppard-Towner bill. He said he had no quarrel with the object sought by this law, but the work could be done properly only by local agencies. Furthermore, he declared the law to be unconstitutional. "A discovery seems to have been made by Congress of a new and hitherto undreamed of power to legislate on any subject which it deems to involve the general welfare." But he pointed out that the Constitution itself precisely defines the things Congress may do "to provide for the common defense and general welfare. And none of these specifically defined and enumerated powers includes the practice of medicine or midwifery." With the Sheppard-Towner law as a precedent, the health department of every State may be brought under the supervision of a Federal department of health. A child welfare bill embodying Governor Miller's views, will be introduced into the Legislature this week.

Government Monopoly of Liquor Sales Proposed.—A reorganization plan for the control of liquor traffic is being drafted under President Harding. The New bill proposes the creation of a Government monopoly on the sale of liquor for medicinal purposes, through the Public Health Service, taking

the entire trade of whiskey out of private hands and placing it exclusively in the hands of Federal officials. All liquor prescribed for medicinal uses would be dispensed directly by local offices of the Public Health Service, and all excise taxes on liquor would be removed and the Government's revenue come through profit on the sale of the liquor.

Hospital Notes.—Ground has been broken for the foundations of four additional units of the County Hospital at Sacramento, Cal. The aggregate cost of the new buildings will reach $364,030.

Plans have been approved for the erection of a hospital in Chippewa County, Mich., as a memorial to the veterans of the Civil War, the Spanish-American War and the Great War. The hospital is to cost not less than $100,000 and is to be financed by a Chippewa County bond issue.

A large addition to St. Joseph's Hospital, South Bend, Ind., is to be erected soon. A part of the new building is to be equipped as a maternity hospital. Dr. J. B. Perteling has been elected president of the hospital staff for the coming year.

A new West Side General Hospital, costing about $250,000 and containing 100 beds, is to be erected at 225 Prescott Avenue, St. Paul, Minn., the site of the present hospital.

The Board of Directors of the City Hospital, Lincoln, Neb., have made arrangements looking to the completion of a new city hospital during the present year.

The City Isolation Hospital of New Britain, Conn., has been reopened to provide accommodations for needy sufferers from tuberculosis.

Colonel Charles Lynch, M. C., editor-in-chief of "The Medical Department of the United States Army in the World War," sailed on the United States Army Transport *Cantigny* on January 19, for a three months' tour abroad, with the object of making special observations with regard to the medical and surgical histories of the World War now being compiled by the medical departments of Great Britain, France, Italy, and Belgium.

Dr. Otto Glogau of New York City has been elected an Honorary Member of the Vienna Otological Society.

Dr. Hubert Work of Colorado, President of the American Medical Association, and First Assistant Postmaster-General, will succeed Will H. Hays as Postmaster-General, according to a report from Washington.

Dr. William H. Hobbs has been appointed chief of staff of the Binghamton (N. Y.) Hospital, to succeed Dr. F. M. Miller who has been made consulting surgeon.

Dr. David L. Edsall of Boston has been appointed dean of the school of public health to be created at Harvard University with a $2,000,000 gift from the Rockefeller Foundation. This fund is to be named in honor of Dr. Henry Pickering Walcott, '58, senior member of the Harvard Corporation. Dr. Walcott was a pioneer in public health and a leader in its advocacy for forty years.

Charitable Gifts and Bequests.—An anonymous gift of $100,000 has been given to Yale University for the establishment of a professorship in honor of Dr. William H. Carmalt, who retired a few years ago after half a century of distinguished service in surgery.

Bequests of $5,000 each are made to the Lenox Hill Hospital, New York, and to the New York Association for the Blind, by the will of Ida Barh Iden.

The Memorial Hospital, Orange, N. J., is the recipient of a bequest of $2,000 under the terms of the will of Mrs. Calista S. Mayhew.

Harvey Society Lecture.—Mr. Joseph Barcroft, F. R. S., Fellow Kings College, Cambridge, will deliver the sixth Harvey Society Lecture at the New York Academy of Medicine, Saturday evening, February 11, at eight-thirty. His subject will be "The Raison d'Etre of the Red Corpuscle."

The Middleton Goldsmith Lecture of the New York Pathological Society will be delivered at the New York Academy of Medicine, Friday evening, February 3, at 8.30 o'clock, by Professor Thomas Hunt Morgan of Columbia University. His subject will be "Some Possible Bearing of Genetics on Pathology."

The Rockefeller Institute for Medical Research on January 20 celebrated the 20th Anniversary of its foundation with a reception at which brief speeches were made by Mr. John D. Rockefeller, Jr., of the Board of Trustees and Dr. William H. Welch of the Board of Scientific Directors.

St. Mark's Hospital Reorganizes Urological Department.—The Urological Department of St. Mark's Hospital has been reorganized under the control of Dr. Victor C. Pedersen, with daily service in two division on alternate days. An opportunity is afforded for young men to receive instruction as assistants in the clinic. Application should be made to Dr. Pedersen.

Medical Society Elections.—THE TELFAIR MEDICAL ASSOCIATION, at its meeting held in Helena, Ga., December 21, 1921, elected the following officers for the ensuing year: *President,* Dr. W. H. Born, McRae; *Vice-President,* Dr. F. R. Mann, Lumber City; *Secretary and Treasurer,* Dr. G. J. Maloy, Helena.

THE EASTERN PANHANDLE MEDICAL SOCIETY, at its annual meeting held in Martinsburg, W. Va., December 17, 1921, elected the following officers for the ensuing year: *President,* Dr. G. J. E. Sponseller, Martinsburg; *Vice-President,* Dr. D. P. Fry, Hedgesville; *Secretary-Treasurer,* Dr. G. P. Morrison, Martinsburg.

THE HARTFORD MEDICAL SOCIETY, at its annual meeting held January 2, 1922, elected the following officers for the ensuing year: *President,* Dr. George N. Bell; *Vice-President,* John B. Boucher; *Secretary,* H. Gildersleeve Jarvis; *Assistant Secretary,* Arthur B. Landry; *Treasurer,* Philip D. Bunce; *Librarian,* Walter R. Steiner; *Trustees for three years,* Dr. E. K. Root, Dr. Frederick S. Crossfield, Dr. William Porter.

THE BELMONT COUNTY MEDICAL SOCIETY, at its annual meeting held in Wheeling, W. Va., December 20, 1921, elected the following officers for the ensuing year: *President,* Dr. F. S. Wright, Bellaire; *Vice-President,* Dr. F. R. Dew, Barnesville; *Secretary-Treasurer,* Dr. J. S. McClelland, Bellaire.

THE CAMDEN CITY (N. J.) MEDICAL SOCIETY, at its annual meeting held January 3, 1922, elected the following officers for the ensuing year: *President,* Dr. J. Lynn Mahaffey; *Vice-President,* Dr. O. W. Saunders; *Secretary,* Dr. E. S. Hummell; *Treasurer,* Dr. W. H. Pratt.

THE MARION COUNTY MEDICAL SOCIETY, at its annual meeting held in Marion, Ohio, January 3, 1922, elected the following officers for the ensuing year: *President*, Dr. C. M. Lewis; *Vice-President*, Dr. C. M. Crane; *Secretary-Treasurer*, Dr. Dana O. Weeks.

Obituary Notes.—Dr. HENRY FERDINAND RIEDEL, a retired physician of Brooklyn, N. Y., died of pneumonia on Jan. 17, at the age of eighty-two years. He was graduated from the Erlanger University, Bavaria, in 1859 and was a surgeon in the Bavarian Army. He was at one time resident physician of the Lenox Hill Hospital, later superintendent of the Emigrant Insane Asylum on Ward's Island, and more recently consulting surgeon to St. Catherine's Hospital, Brooklyn.

Dr. EDWIN E. CAMPBELL of Alexandria Bay, N. Y., a graduate of the Chicago Homeopathic Medical College in 1885, died on January 3, at the age of sixty-five years.

Dr. FANNY WOHLFEIL APFEL, retired, of Brooklyn, N. Y., died on January 5, at the age of eighty-one years. She was graduated from Lemberg University, Austria, and was in the Austrian governmental service during the cholera epidemic in that country in 1853.

Dr. JOSEPH BIRBECK BURROUGHS, physician, explorer, and author, died in Chautauqua, N. Y., on December 26, at the age of sixty-seven years. He was graduated from Syracuse University Medical School.

Dr. WALTER WATSON, a retired physician of Mount Vernon, Ill., died in a hospital in St. Louis, Mo., on January 8, at the age of seventy-one years. In 1904 he was chairman of the State Democratic Central Committee and for a time was superintendent of the State Hospital for the Insane at Jacksonvile.

Dr. JOHN CHRISTOPHER O'CONNOR, a graduate of Bowdoin Medical College in 1905, died at his home in Manchester, N. H., on January 8, at the age of forty-three years. He was a member of the American Medical Association and of the Medical Reserve Corps of the Army.

Dr. EDWIN G. BOOTH, one of the few surviving officers of the Confederate States Navy, died at his home in Williamsburg, Va., on January 5, at the age of eighty-three years. He was taken prisoner, together with Admiral Buchanan and others, in the battle of Mobile Bay. Dr. Booth was graduated from the University of Pennsylvania School of Medicine in 1861.

Dr. WILLIAM PHILLIPS CARR, formerly of Washington, D. C., died at Summit Point, W. Va., on December 28, at the age of sixty-four years. He was graduated from George Washington University School of Medicine in 1888, and was clinical professor of surgery in that institution. He was a Fellow of the American College of Surgeons and of the American Medical Association, a member of the Southern Surgical and Gynecological Association, Medical Society of the District of Columbia, Washington Academy of Sciences, Association of American Anatomists, and Washington Gynecological Society. He was consulting surgeon at Washington Asylum Hospital and at the Government Hospital for the Insane at Anacostia.

Dr. HARRY WALTER of Spring Mount, Pa., died at Sarasota, Fla., on December 18, at the age of sixty years. He was graduated from the University of Pennsylvania School of Medicine in 1892.

Dr. LOUIS P. HINN of Fond du Lac, Wis., a graduate of Hahnemann Medical College and Hospital, Chicago, in 1885, died on December 31, at the age of sixty-five years.

Dr. J. W. ARNOLD of Columbus, Ind., died suddenly on December 26, at the age of sixty-nine years. He was graduated from the Central College of Physicians and Surgeons, Indianapolis, in 1885.

Dr. ROLAND DUJARDIN of New York, a graduate of the New York Homeopathic Medical College in 1894, died on January 8, at the age of sixty-six years.

Dr. EDWARD V. KENNEDY of Brooklyn, N. Y., died in a Newburgh hospital following an operation for appendicitis, on January 10, at the age of thirty years. He was graduated from the Long Island College Hospital, Brooklyn.

Dr. KINGMAN PORTER MOORE of Macon, Ga., died suddenly in Pompano, Fla., on Jan. 15, at the age of seventy-eight years. He was a graduate of the Baltimore Medical College in 1868. He was a member of the American Medical Association, served as secretary, vice-president and president of the Georgia Medical Socoety, and was an honorary member of the American College of Surgeons.

Dr. BAILEY P. LESTER, a graduate of Vanderbilt University Medical Department in 1879 and of the University of Nashville Medical Department in 1882, died at his home in Woodbury, Tenn., on Jan. 5, at the age of sixty-four years.

Dr. J. H. WARREN MEYER, Lieut. M. C., U. S. Marines, died of pneumonia in Denver, Col., on Dec. 17, 1921, at the age of thirty-eight years. He was graduated from Rush Medical College, Chicago, in 1907.

Dr. JOHN CASSELL ROGERS of Kansas City, Mo., a graduate of New York University Medical College in 1875, died of heart disease on Jan. 9, at the age of seventy-eight years. He was a member of the American Medical Association and of the Jackson County Medical Society.

Dr. JOHN KURRUS of New York, a graduate of the College of Physicians and Surgeons in 1899, formerly on the staff of the Harlem Eye and Ear Hospital, died suddenly of heart disease on Jan. 17, at the age of fifty-six years.

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Correspondence.

LETTER FROM SWITZERLAND.

(From Our Own Correspondent.)

GENEVA, January 1, 1922.

Molière's Centenary.—The Academy of Medicine of Paris has done a graceful act in deciding to keep the tercentenary of that sworn enemy of charlatans—Molière. As Dr. Cabanès wittily remarked: "It is precisely because Molière handled Diafoirus and his confrères so roughly that we owe him a tribute of gratitude. By inveighing against purging, blistering, and blood-letting he provoked the recrudescence of arteriosclerosis, uremia, and gout, and paved the way of the medical fraternity of to-day to fortune. Let us not be ungrateful." The French Chamber of Deputies, which has always contained a fair number of doctors—M. Clemenceau among them—is clearly of the same opinion, for it has voted 200,000 francs to meet the expenses of the celebration.

Radium Therapy.—At a recent meeting of the Medical Society of Geneva the question of radium therapy was very thoroughly discussed by Drs. Wassmer, Besse, Kotzareff, Du Bois, Julliard, and others, and the work done by Besse on the biological action of radium is particularly instructive. The activity of radium may be regarded as a stimulant of cellular life, but in actual practice it is used as an agent of death. When the rays are normally applied they do not kill all the cells but make a selection (electivity); when they are filtered this electivity may persist, but to a lesser degree; with a strong dose uniform destruction (indifference) ensues. The action is not immediate, a certain latent phase elapses. The elements attacked are sometimes of the highest biological order, but usually are indifferent elements. The action of the Roentgen rays is practically *nil* on bacteria, that of radium is moderate. In *vitro* Koch's bacillus shows phenomena of excitation and of development when the dose of the radium rays is small. In the patient it is possible that there is both excitation of the bacillus and organic defence and with larger doses destruction of the tuberculous tissues. The action of radium on the gonococcus is particularly useful as it kills this organism and modifies the lesions produced by it. Moderate doses of radium rays have an inhibitory and destructive effect upon plants, producing monsters. On the other hand, weak doses increase the plant production about 40 per cent.

On the higher animals and man the action of radium varies according to the tissue and cells. The hematopoietic organs are very sensitive to the action of radium. In the spleen destruction of the lymphocytes and disappearance of the follicles take place. According to the dose and length of the exposure there is increase or diminution of the leucocytes, hemolysis, loss of opsonising power, etc. In the bone marrow only weak excitation will produce proliferation. A thickening of the vessel walls and endothelium is observed. The spermatozoid is destroyed in the testicle and atrophy of the Graafian follicles in the ovary ensues. The action of radium on the thymus is the same as that of the Roentgen rays, resulting in atrophy of the gland. The action on the thyroid is slower; in young goiters and in Basedow's disease splendid results have been obtained. According to the dose employed radium produces degeneration of the muscles, excites cartilage, while the nerve cells and elastic fibers are very resistant. The process of curative action may be tabulated somewhat as follows: (a) destructive in carcinoma, (b) corrective in sarcoma, (c) causing hyperplasia in angioma, (d) reactivating in cheloid.

Diseases of metabolism have been treated by radium, especially in Germany. In acute articular rheumatism it is useless, but some results have been obtained in gonorrheal rheumatism of the mixed variety. In arthritis deformans about 50 per cent. of improvement may result if the subject is young and the affection recent. In gout the action of radium, like that of radioactive waters, is at first painful but after a time the pain subsides and the tophi decrease in size. There is an action on the body fluids made evident by superproduction of the ferments and also, perhaps, a dissolving physical action on the tophi. In diabetes there is an excitation of the leucocytic and glycolytic ferments. In uremigenous nephritis radium possesses a diuretic, laxative, tonic, and above all a urico and ureosecretory action which should be more frequently availed of in practice.

International Diploma in Hygiene.—This semester has seen the first course for an International Diploma in Hygiene, the universities of Cambridge, Paris, and Zurich being the first to offer this degree. The course of lectures designed by the University of Paris is much shorter than at Cambridge, being intended to meet a national as well as an international need. Not only French medical graduates but also foreign physicians who hold either the M.D. of Paris or a foreign degree recognized by the University are admitted to the course. The University of Zurich also admits foreign physicians to this course. The University of Cambridge requires that all candidates for this diploma shall have matriculated and resided in the University for not less than two terms or for one term and during the long vacation course.

Progress of Medical Science.

Boston Medical and Surgical Journal.

January 12, 1922, clxxxvi, 2.

1. The Challenge of the Chronic Patient to the Medical Profession. Joel E. Goldthwait.
2. The Diagnosis of Heart Disease, with Special Reference to Its Importance in Preventive Medicine. Paul D. White.
3. Problems for Cardiovascular Investigation. Samuel A. Levine.
4. Common Pulmonary Diseases Confused with Tuberculosis. Edward O. Otis.
5. Postdiphtheritic Disseminated Myelitis, with Report of a Case. Hale Powers.
6. Abnormal Menstrual History, Followed by Pregnancy. Charles J. Kickham.

1. The Challenge of the Chronic Patient to the Medical Profession.—Joel E. Goldthwait arraigns the medical profession for its lack of interest in chronic medicine, as demonstrated by the present-day organization of our hospitals and by our textbooks of medicine and surgery as they exist to-day. A point which we should seriously consider is that with the patients having chronic disease who are now accepted for study, un-

less something is done with the elaborate examinations which are being made, other than to report negative findings, not only is the patient harmed by the common hopeless or indifferent prognosis given, but the profession is rendering itself liable to ridicule. In the study of many such records the writer has been surprised at the lack of consideration given to anatomical structure or the general appearance of the patient. Not only do individuals vary in structure—muscles, bones, viscera, and potentials of activity—but with considerable regularity such structure carries with it its own potential of disease. For instance, with the stomach and intestine, the many malpositions, with the possibilities of the maladjustment leading to disturbance of the physiology, should be too evident to require mention, but the fact that such physiological disturbances are capable of correction by mechanical means other than operation does not seem to be fully realized. As illustrative of a good deal of general reasoning is the attitude held to-day regarding the chronic arthritic and focal infection. That the recovery from joint symptoms which follows the removal of teeth or tonsils is at times due to this specific treatment there can be no question, but that all cases which ultimately recover do so because of this, anyone who has seen much of such cases must question. Most of these cases are due, so far as we can see to-day, to complex disturbances of the physiology as it concerns the abdominal structures, in which probably no one organ is wholly at fault. Imperfect drainage of the bowel may be a factor, but the imperfect drainage of the ducts of other viscera may be as important, or the character of the secretion of the different glands or organs may be changed by disturbances of the blood supply. The problem of the chronic arthritic, if studied with reference to the physiological potentials of the special individual, should be most hopefully faced. Make the most thorough examination of the patient that is possible, but first study the anatomical structure of the individual with the special physiology that is peculiar to such special structure, as well as the disturbances of physiology that should be expected, as the body is used by the special case, and some of the special tests will take on new significance, so that the cases become understandable and relief can be offered.

4. Common Pulmonary Diseases Confused with Tuberculosis.—Edward O. Otis asserts that a mistaken diagnosis of tuberculosis is not at all uncommon. Among the frequent errors of mistaken diagnosis are chronic affections of the upper respiratory tract, such as nasal obstruction, causing chronic cough and symptoms of bronchitis, and diseases of the nasal sinuses, the tonsils or a chronic pharyngitis. The differentiation from tuberculosis in these cases depends upon the fact that there is, as a rule, no constitutional disturbance indicating a general infection, such as rapid pulse, increased temperature, etc. To avoid the error of mis- a history of influenza, the sputum should be examined the upper respiratory tract in doubtful cases. When there is suspicion of tuberculosis in a patient giving a history of influenza, the suptum should be examined frequently and the patient kept under close observation. Likewise the sputum should be examined in all cases of chronic bronchitis. There is a condition not infrequently met with, perhaps more frequently in children, which is designated by some as a chronic pneumonia, by others as subacute or chronic bronchopneumonia. Tubercle bacilli are never found in these cases. There is involvement of a part or the whole of a lobe, indicated by dullness, impaired or modified respiration, and an abundance of moist râles. The significant fact is that this infiltration is practically always confined to the lower lobe. The *x*-ray, which one would expect to show marked evidence of disease, shows nothing at all, or some intensification of normal bronchial shadows. The differential diagnosis from tuberculosis in this class of cases depends upon the absence of the tubercle bacillus, the location of the lesion always at the base, and the absence of marked constitutional symptoms. Furthermore, the rapid recovery is opposed to a tuberculous lesion. Such cases are perhaps described as tuberculosis more often than any other pulmonary lesion, and are not infrequently sent to a sanatorium. The differential diagnosis of bronchiectasis is made from the kind of cough which is paroxysmal, the absence of tubercle bacilli after repeated examinations, and the frequent appearance of good health even after the disease has existed for a long time. The lesion is generally situated in the middle or lower lober, and the fingers are frequently markedly clubbed. It is not justifiable to make a diagnosis of tuberculosis because a man has been a stone cutter or exposed for years to other kinds of irritating dust. In returned soldiers with a history of having been gassed, the writer has not been able to discover evidence of tuberculosis. That gas inhalation conduces to the development of tuberculosis has not, he believes, in the experience of most observers, been demonstrated. It is unjust and often cruel to the patient to make a definite diagnosis of pulmonary tuberculosis without good and sufficient evidence.

Journal of the American Medical Association.

January 14, 1922, lxxviii, 2.

1. Certain Fundamentals in Early Diagnosis of Pulmonary Tuberculosis. Lawrason Brown.
2. Native Infestation by the Broad Tapeworm, Diphyllobothrium Latum. Joseph K. Calvin.
3. The Treatment of Early Infantile Paralysis as Based on the Physiologic Indications. Henry O. Feiss.
4. Optic Neuritis in Serum Sickness. V. R. Mason.
5. Medicolegal Application of the Blood Group. J. Arthur Buchanan.
6. Intravenous Injections of Glucose in Toxemia of Pregnancy: A Clinical, Pathological and Chemical Study, with Deductions Regarding the Prognostic Significance of Glycemia Curves. Paul Titus and M. H. Givens.
7. Dystosia Due to Constriction of One Thigh by Cervix in a Cephalic Presentation. J. P. Greenhill.
8. The Clinical Appplication of the Audion Amplifier. Magnus J. Myres.
9. Methods of Precision in the Diagnosis of Diabetes: A New Instrument. Henry J. John.
10. A Traction Splint for Fractured Metacarpals and Phalanges. George W. Hawk.
11. Fibroid Tumor of Ovary in a Girl of Fourteen. A. W. Macdonald.
12. A New Radium Uterine Applicator. Paul Eisen.
13. Turnbuckles Extension Apparatus for the Reduction of Fractures. Edward J. Lewis.
14. A Case of Syringomyelia Associated with Cervical Ribs. Cora Hennen Morris.
15. Extensive Head Injury from Circular Saw. George A. Davies.
16. Myoplasty to Restore Function in Extensor Communis Digitorum. William Jackson Merrill.
17. Adhesive Strips for Anal Exposure in Surgical Procedures. Harry C. W. S. de Brun.

3. The Treatment of Early Infantile Paralysis as Based on the Physiological Indications.—Henry O. Feiss takes issue with the plan of the Harvard Infantile Paralysis Commission, which recommends that the treatment of infantile paralysis in the early period should be rest and fixation. On the ground that (1) the muscles are still reasonably good at the beginning; (2) that as a result of the diminution of pressure in and about the spinal cord a certain amount of improvement tends to take place spontaneously, and (3) this improvement takes place early, Feiss claims that it is physiological to apply function as consistent with the normal conditions of life as possible. This means not massage and electricity, which are only local in their effects, but the striving to obtain function through physiological agencies. Broadly speaking there are three kinds of motor function in striated muscles: (1) That willed by effort, (2) subconscious, and (3) reflex. In early infantile paralysis it is necessary to make trial of all three kinds. The writer has applied this principle in about twenty cases of early infantile paralysis in a local mild epidemic in Cleveland, with very encouraging and in some instances even startling results, especially when treatment was instituted early and strenuously.

4. Optic Neuritis in Serum Sickness.—V. R. Mason reports the case of a patient admitted to the hospital on the second day after the onset of acute lobar pneumonia. Type I pneumonia were grown from washed sputum and the patient received 500 c.c. of Type I antipneumococcus serum intravenously. His temperature fell by crisis on the seventh day of the disease. Severe serum sickness appeared on the ninth day, and was present for fourteen days. During the course of the serum sickness a well-marked, bilateral optic neuritis was observed associated with marked lethargy and an increase of the globulin and cellular content of the cerebrospinal fluid. The fundi of two other patients

with serum disease were also examined, one of whom was suffering with cerebrospinal meningitis and the other with Type I pneumonia. Both of these showed temporary bilateral optic neuritis and similar changes in the cerebrospinal fluid. These three cases are believed by the writer to represent reactions on the part of the nervous system to the parenteral introduction of foreign protein into a susceptible individual. Since in each instance the urine was normal or contained only a slight trace of albumin and since optic neuritis following acute lobar pneumonia is rare, and in the recorded instances in which it has occurred permanent visual changes have resulted, it would seem that the introduction of the foreign protein into these sensitive individuals was responsible for the eye condition. It is possible, furthermore, that in some cases optic neuritis might be the only symptoms of hypersusceptibility to a food or other protein.

5. Medicolegal Application of Blood Group.—J. Arthur Buchanan refutes the statement that the blood group offers criteria of value as a means for identification in certain instances and for the fixation of responsibility of parentage in others. He has reviewed family pedigrees covering three generations which show very distinctly that the group in the children is limited only by groups represented in their ancestors. Blood groups occur in either a homozygous or a heterozygous state; if the former the children are all of the same group as the parents, and if the latter, the groups present in the grandparents will appear. It is possible that a certain blood group may appear as the dormant character and this would offer a possibility for the miscarriage of justice if the blood group were utilized as a criterion of parentage. The only instance in which it appears that the blood group could be held as direct evidence would be in a family of four or more children in whom one was of a different group than the evident group represented in both parents and all four grandparents. Buchanan hopes that no court of justice will ever utilize a means of adjusting a dispute that is surrounded with such possibilities of leading to the miscarriage of justice.

6. Intravenous Injections of Glucose in Toxemia of Pregnancy.—Paul Titus and M. H. Givens, finding that the intravenous injection of glucose for pernicious vomiting of pregnancy gave fairly uniform and successful results, have applied the same treatment to other toxemias of pregnancy, eclampsia in particular. The usefulness of glucose and other carbohydrates seems to be based on the fact that in toxemia of pregnancy there is a carbohydrate deficiency in the maternal organism, due to an unusual demand for carbohydrates on the part of the fetus. This deficiency may be augmented by deficient or improperly balanced diet. The reserve store of glycogen in the liver is drawn upon, and the organ thus depleted of glycogen. Pathological changes in the cells result, and its detoxicating and other normal functions are promptly impaired thereby. Disturbances in the kidney function so commonly seen in the various toxemias of pregnancy are probably secondary to the hepatic changes. Successful results have been obtained by the use of carbohydrates among 68 patients now reported, in addition to the series of 76 previously reported. Immediate clinical improvement in individual patients, as well as a general lowering of the mortality rate in eclampsia, has been noted in the clinic of the Western Pennsylvania Hospital as the result of the intravenous administration of glucose for this condition. Chorea gravidarum, preeclamptic toxemia, and fulminating toxemia with ablatio placenta have likewise shown favorable results from this treatment. The usual necropsy findings in the liver of patients dying from any toxemia of pregnancy were found to be distinctly altered if the patient was given an intravenous injection of glucose solution before death. Those portions of the liver lobules which were ordinarily necrotic were thereby restored to a marked degree. The usual injection consists in 50 to 75 gm. of chemically pure glucose dissolved in from 250 to 500 c.c. of water. Single doses repeated as required are preferable to a continuous flow of the solution into the vein. It is thought that the rate of absorption and storage of the injected sugar is an index to the condition of the liver. Glycemic curves plotted from blood sugar determinations at stated intervals after injection of glucose disclose the fact that the sugar is absorbed and stored by some patients more rapidly than in normal controls, whereas in others the storage is slower than normal. A prognosis based on the first curve, therefore, is favorable, because this liver may be assumed to be depleted of glycogen but able to restore itself when given an opportunity, whereas the slower rate indicates liver necrosis with loss of function.

8. The Clinical Application of the Audion Amplifier.—Magnus J. Myres explains the theory of the vacuum (amplifying) tube and describes the recording apparatus, which make it possible to obtain a graphic record of sound. This device magnifies the electric waves of a telephone circuit and is the beginning of a "microscope" for the ear. The amplifying tube means enlarging the field of diagnosis. It has been shown that the heart sounds occupy a longer period of the cardiac cycle than generally has been known. This probably is due to vibration beyond the range of the average ear. A third sound, presystolic or diastolic, in time appears in all records of normal hearts examined. Its significance has not yet been determined. Joint and muscular movements give rise to vibration; this field is new and open to investigation. By means of a variable damper, the period of heart and lung sounds can be ascertained. This, in questionable cases, will aid in accurate differential diagnosis. Experiments with the cardiac amplifier and recorder are being conducted in the U. S. Signal Corps Research Laboratories, and the writer hopes to be able to show sufficient records of normal and pathological heart and lung sounds to establish the permanent worth of this system.

The Lancet.

December 24, 1921, cci, 5130.

1. The Relationship of Uremia and Hyperpiesia. H. Batty Shaw.
2. Serological and Morphological Characteristics of the Pneumococcus. A. L. Urquhart.
3. The Importance of Thoracic Respiration. W. Arbuthnot Lane.
4. The Rationale of the Wassermann Reaction. J. E. R. McDonagh.
5. The Sachs-Georgi Reaction in Syphilis. James Law Brownlie.
6. Tumor of the Right Petrous Bones. Thomas Anwyl-Davies.
7. Plague on Board Ship. W. W. Clemesha.

1. The Relationship of Uremia and Hyperpiesia.—H. Batty Shaw asserts that uremia is a complete misnomer based upon the erroneous opinion that the urine or renal excreta by retention from kidney diseases cause uremia. Probably all cases of socalled primary disease of the kidney may owe all signs and symptoms and the actual diseased condition of the kidneys to altered conditions of the blood, from some infection whether chronic or not, *e.g.* syphilitic toxemia and various bacterial toxemias. In hyperpiesia we can find all the manifestations familiar to use in the past as uremic. Some of Bright's contemporaries firmly believed that albuminuria and dropsy, and presumably other symptoms and changes associated with them, even the kidney disease, were due to some general cause operating in the circulatory system. The relationship between uremia and hyperpiesia is easily settled. Since hyperpiesia reveals in its advanced stage each and every manifestation met with in uremia, when a case presents socalled uremic manifestations, hyperpiesia is present, and if it is absent, then at death cardiac hypertrophy will be found, showing that it has been present at one time or another. "Hypersiesia" and "hyperpiesic" are words preferable to "uremia" and "uremic;" they do not commit one to an exclusive pathology and are infinitely more accurately descriptive. The writer regrets that he cannot describe the poisons circulating in the blood which produce hyperpiesis or any of the other symptoms of hyperpiesia, but he feels sure they are in the blood, and that they are in no way expressive of defective action of the kidneys. He thinks that many of the phenomena met with in the later stages of hyperpiesia, when symptoms of a so-called uremic character develop, are much more likely to be due to toxins present in the blood, as the result of some inflammation, somewhere in the body, than to metabolites present in the blood in excess owing to de-

fault of the kidney whose duty it is to extrude such bodies.

2. Serological and Morphological Characteristics of the Pneumococcus.—A. L. Urquhart presents an analysis of organisms isolated from 77 cases of pneumococcal infection and has correlated the results with those of the Rockefeller and other workers by means of Rockefeller anti-pneumococcal serums, so that it was possible to compare the results obtained with those of Lister and American workers. From this work he draws the following conclusions: (1) That from the laboratory methods employed the pneumococcus presents its most typical appearance in fresh body exudates, and that bile solubility and the absence of hemolytic activity are almost constant characteristics of the pneumococcus. (2) That for the separation of pneumococci in sputum and pus, Dudgeon's method is a convenient and satisfactory one. (3) That the fermentation reactions of the pneumococcus are of no value for the division of the organisms into types. (4) That pneumococcal antibodies corresponding to the type of pneumococcus responsible for the infection, though not present in the early stages of the disease are usually formed in the postcritical blood serum of cases of lobar pneumonia, and in the later stages of some other pneumococcal infections. (5) that the pneumococci responsible for lobar pneumonia and other serious pneumococcal infections in this country are similar to those found in America and South Africa. (6) That Type IV pneumococci are capable of producing any of the serious infections due more commonly to Types I and II infections.

3. The Importance of Thoracic Respiration.—W. Arbuthnot Lane calls attention to the importance of the part played by thoracic respiration in all periods of life; to the necessity of observing its extent; to the recognition of the factors which affect it prejudicially, and considers the best mode of dealing with it and with the conditions which impair its efficiency. He points out that in observing an individual passing from extreme inspiration to extreme expiration the alterations in the curve of the spinal column is a more marked feature than the elevation and depression of the costal arches. The vertebra, instead of forming a rigid rod, are freely movable in an antero-posterior plane. Curiously the physiologist makes no mention of this movement of the vertebra. The internal intercostal muscles are the most powerful extensors of the dorsal spine. Any condition that lowers the vitality of the individual, or which, in other words, reduces the capacity to expend energy, diminishes the degree of thoracic respiration. The factor that most frequently affects his is intestinal autointoxication, and this is exceedingly common, if not almost universal in civilized communities. Intestinal stasis develops at an early period in the life of the child. Sooner or later the contents of the small intestine become infected by organisms and the food-supply is contaminated. This results in a poisoning of the tissues and organs of the body, rendering them unable to perform their functions in a normal manner and reducing their capacity to resist the attacks of microorganisms. The observation of a large number of delicate children shows that in the thoracic respiration is in abeyance. The tissue in the infant in which the earliest evidence of infection by microorganisms is present is the lymphoid tissue in the nasopharynx. Later in life evidences of lowered resistance are shown in infection of the periodontal membrane, to which the name of pyorrhea has been given. Both of these conditions are secondary to stasis. A great deal of defective thoracic respiration is due to habit. Besides being very deforming it serves to diminish the oxygenation of the blood and to hasten the degenerative processes of the body.

4. The Rationale of the Wassermann Reaction.—J. E. R. McDonagh describes experimental work which shows that the protein particles in the serum in syphilis undergo three main changes: (1) There is an increase in number, most noticeable in early syphilis and which can be detected before the complement fixation test is positive. (2) Surface changes, by which protein particles lose many of their surface electrolytes, leading to changes with increase of their power of adsorption. (3) Mass changes, consisting in an increase of amino groups in early syphilis and an increase of lipoid material in late syphilis. When the electrolytes become dissipated and the protein mass has to undergo changes to compensate for the loss, the complement fixation test is positive, because the adsorptive capacity of the particles is increased with the hope of being able to take from the particles added the electrolytes necessary to restore balance. When the loss of electrolytes is just balanced by the substantive changes the complement fixation test is negative. When the electrolytes are still further destroyed, the complement fixation test is anticomplementary. Certain protein particles when rendered anticomplementary will serve as the antigen. A Wassermann reaction can actualy be undertaken with ingredients made from the patient's own blood with the sole addition of some colloidal silicic acid for use as the amboceptor. Any factor which causes the condensation of protein particles may make a normal serum, and an early and late syphilitic serum behave alike. The whole story is really that of a combat on the part of the protein particles—one of condensation versus dispersion. From this we may conclude that a negative complement fixation test does not exclude syphilis, and that a positive complement fixation test means no more than that presumably the patient has had syphilis. A degree of agglomeration and condensation occurs normally in the serum of most pregnant women. This explains why at least 10 per cent. of non-syphilitic women when they are pregnant give a positive complement fixation test, and also why repeated freezing and thawing, exposure to alterations of atmospheric pressure and to radioactive bodies, and shaking with various non-electrolytic substances, tend to make a normal serum give a positive or anticomplementary reaction.

British Medical Journal.

December 24, 1921, ii, 3182.

1. The Influence of Foods Rich in Accessory Factors in Stimulating Development in Backward Children. Harriette Chick and Elsie J. Dalyell.
2. The Etiology of Rickets. G. Bruton Sweet.
3. Diagnosis and Treatment of Perforated Duodenal Ulcer, Founded on Forty-One Consecutive Cases. Frederick K. Smith.
4. Blue Sclerotics and Brittle Bones, with Macular Atrophy of the Skin and Zonular Cataract. Alaf Blegvad and Holger Haxthausen.
5. The Difficulties in Diagnosis and Treatment of Hepatic Abscess. George J. Langley.
6. Sudden Death from Asphyxia Following Regurgitation of Semi-Digested Food. E. Emrys-Roberts.
7. A Case of Peliosis Rheumatica. H. V. Jackson.

1. The Influence of Foods Rich in Accessory Factors in Stimulating Development in Backward Children.—Harriette Chick and Elsie J. Dalyell relate the histories of nine very backward children, of ages varying from twelve to thirty-one months, in whom the addition to the diet of antiscorbutic juices and of fats containing the fat-soluble accessory factor was found to have a satisfactory result in stimulating growth and progress. The diet allotted to these children did not appear to be lacking in calories, but there was evidence that it was deficient in antiscorbutic principle and milk fat. Eight of the nine children gave a history of previous attacks of definite scurvy, and two showed bony deformities probably of scorbutic origin. It was not possible to determine to which of the accessory food factors the improvement in these children was due; probably both factors were concerned. These cases indicate that a child's capacity for recovery is considerable when conditions of privation are rectified; the normal standard was approached in six to twelve months, even after twenty-four months of retardation in growth and progress.

2. The Etiology of Rickets.—G. Bruton Sweet holds that the claim that rickets is due to a deficiency of fat-soluble vitamine in the diet has not been proved. In looking for an explanation that will satisfy all the peculiarities of rickets as shown by laboratory experiments and clinical observation, including the results of therapy, it appears to the writer that one must go further than to assign either a purely dietetic or hygienic etiology for this disease. The profound metabolic changes which occur in a severe case of this disease can, he considers, be only caused by a disturbance of those organs which control metabolism in the young. If a deficiency of endocrine secretion is the direct result

of an unsuitable artificial diet, and the latter is also the chief factor in the causation of rickets, it would perhaps not be illogical to conclude that this disease is the effect of a deficiency of the secretion produced by one or more of these organs. Of the various endocrine organs a deficiency of whose secretion is responsible for the production of rickets that of the thymus gland is most probable. A plausible reason for considering that rickets is due to thymic insufficiency is that the age incidence of the active growth of the thymus and that of the disease known as rickets is almost identical. The normal thymus does not increase in size after the age of two years, and rickets as a progressove disease is usually limited to that age. Surely these significant facts are something more than merely a coincidence. Confinement in young animals, with the attendant evils of lack of sunshine, exercise and cleanliness, are important factors in increasing the severity of the disease.

4. Blue Sclerotics and Brittle Bones with Macular Atrophy of the Skin and Zonular Cataract.—Olaf Blegvad and Holger Haxthausen, in summing up information on 156 persons having a pedigree of blue scleræ and brittle bones, find that 76—that is about one-half—had blue scleræ; and among 52 persons whose bones were examined in addition to the symptoms of the eyes, 24—also about one-half—had the tendency to fracture. They think it evident that the anomaly is inherited as a dominating quality according to Mendel's theory. In addition to the blue scleræ and fragility of the bones, other anomalies have been observed in persons of this type, such as defects of hearing, hemophilia, syndactyl and astigmatus, palatum fissum, a tendency to luxations and subluxations. A case is reported, occurring in a woman 24 years of age, in which the most interesting feature was a zonular cataract, which is a hereditary affection, and which, so far as the writer can ascertain, has not been described before in connection with Eddowes complex of symptoms. Further there is a peculiar change in the skin which, in its development and appearance, corresponds to a description given for the first time by Thibierge, who called it *athrophodermie érythémateuse en plaques à progression exentrique.* The name used in recent publications is *atrofia maculosa cutis.* Whether this rather rare cutaneous disease is found accidentally in this patient together with Eddowes complex of symptoms, or whether there really exists a connection between them it is impossible to say from a single case. If, however, one considers that the changes in the scleræ and bones are due to a defective development of the mesodermal tissue, it seems logical to conclude that the cutaneous atrophies form a part of the entire disease.

Annals of Surgery.

October, 1921, lxxiv, 4.

1. Some Researches on the Peri-Arterial Sympathetics. Rene Leriche.
2. **The Simplification of Technique in Operations for Hare-Lip and Cleft Palate** James E. Thompson.
3. Further Data Concerning the Experimental Production of Pancreatitis. Edward Archibald and E. C. Gibbons.
4. Drainage of Abscess of Pancreas. Albert J. Oschner.
5. Traumatic Pancreatitis. H. Beekman Delatour.
6. Chronic Cholecystitis without Stones: Diagnosis and Treatment. Willy Meyer.
7. Surgical Management of Gastric Ulcers. Donald C. Balfour.
8. The Altered Anatomy and Physiology of the Cecum and Ascending Colon, the Result of Adhesions. George G. Ross.
9. Carcinoma of the Lower Part of the Sigmoid in a Boy Fourteen Years of Age. Ingersoll Olmstead.
10. The Surgical Treatment of Megacolon. Charles N. Dowd.
11. The Management of Pelvic Abscess in Acute Appendicitis. Ellsworth Eliot, Jr., and Otto Carl Pickhardt.
12. The Mechanics of Production and the Treatment of Spiral Fractures. Emmet Rixford.
13. Inequality of the Lower Extremities Following Fracture of the Shaft of the Femur in Children. Edward D. Truesdell.
14. Note Concerning Keratin and Keratohyalin in Tumors of the Hypothysial Duct. Percival Bailey.

1. Some Researches of the Peri-Arterial Sympathetics.—Rene Leriche states that the systematic study of the phenomena which follow the exciting of average-sized arteries, that is, of prevailing muscular structure, reveals the existence of a very characteristic physiological reaction which never fails in normal circumstances. When the sheath of an artery is removed, just at the moment its external layer is pinched, the vessel contracts, its pulsation stops at once and its size diminishes. If you excise the cellular layer the diminution will progressively reach the third or the fourth of the normal size of the artery. This arterial contraction usually causes the pulse to disappear, but it does not altogether interrupt the circulation. The arterial contraction is the primary element of the characteristic reaction against excitation. As secondary signs in the hours following pulsation is impercentible or very feeble; the operated limb is colder than the other; there is a difference of 3° or 4° C. After three to fifteen hours following excision of the nervous layer there is an elevation of local temperature of 2° and even 3° C., central temperature not being modified, and the patient has a subjective sensation of heat. There is also an elevation of arterial pressure, which may reach 4° c.c. according to the healthy side. An increasing amplitude of oscillations is also shown by the phygmomanometer. The vasodilator reaction is transitory; after peri-arterial sympathectomy it becomes attenuated from the fifth to the sixth day and disappears after three or four weeks. At the level of the viscera absolutely nothing is known of these reactions; it is only at the level of the limbs that the phenomena resulting from an injury of the peri-arterial sympathetic plexus can be distinguished, and their analysis is not easy. One may, however, isolate two groups: In the first group the characteristic physiological reaction is pure, for instance Raynaud's symptoms are characteristic of vasomotor sympathetic disease. In the second group reaction is disturbed and gives various troubles, either as the result of contracture of too long duration or by abnormally persisting dilatation. In such cases biological disturbances are produced in the subjacent tissues, creating various associations of motor, sensitive, vasomotor, glandular, and trophic symptoms, or even signs of local necrosis. Evidence is produced to prove that modified circulation is the real cause of the various phenomena studied. This leads the writer to believe that logically the treatment of those vasomotor or trophic troubles must aim to modify peripheral circulation by peri-arterial sympathectomy. The technique is to isolate the artery on 8 to 10 cm., to fix the vascular sheath after dividing, to hold one part with a forceps and dissect off the cellular tissue either with knife or cannular sound until there has been effected complete denudation of the vessel, which becomes greatly reduced in size. This brings no injury to the arterial wall, a fact which Leriche has verified at four and eight-month intervals. He has performed this operation sixty-four times: In 11 cases of causalgia or equivalent syndromes; 2 cases of painful stumps; 19 cases of post-traumatic contractures; 4 cases of post-traumatic edema; 4 cases of ischaemic sequels; 10 cases of trophic sloughs after nerve section; 3 cases of attempt to modify tension of cerebrospinal fluid; 2 cases of Jacksonian epilepsy, and 1 case each of trophedema, of trophic slough of the heel after medullary injury, of varicose eczema, of trophic troubles after frostbite, of spasmodic paralysis, of goiter, of intermittent claudication and of erythromelalgia. In this series of cases there were remarkable successes and complete failures. The operation has been performed twice for Raynaud's disease and gave good results. The writer concludes that sympathectomy is worth trying in certain types of painful phenomena and in trophic troubles.

3. Further Data Concerning the Experimental Production of Pancreatitis.—Edward Archibald and E. C. Gibbons, from a consideration of experimental fact and clinical experience, think it justifiable to present the problem of the etiology of pancreatitis in the following way: "The conditions for actual serious damage to be done in the pancreas must pretty certainly be three: (1) A change in bile composition, increasing the bile salts; (2) undue resistance, perhaps often amounting to spasm, of the common duct sphincter; and (3) abnormal rise of pressure in the biliary system behind, either in the gall-bladder or the common duct. Animal experiments were carried out for the purpose of discovering in the facts of clinical experience circumstances fulfilling these postulates, which may be summarized as follows: (1) Infected bile, aspirated from the inflamed gall-bladder, exercises a much more necros-

ing and inflammatory effect upon the pancreas than does normal bile. (2) Chemical investigation of infected bile has not yet proved that this difference of effect is due to an increase in the concentration of bile salts as the result of bacterial action on the bile. (3) Mild grades of pancreatic swelling, as estimated clinically, are certainly possible, and are represented by edema with early necrosis of the parenchyma, presumably the result of bile invasion. The clinical statement in operation records as to the presence of a "somewhat thickened and indurated pancreas" is probably a correct interpretation of fact in most instances. (4) The gall-bladder, under conditions of irritation from stone or inflammation, is probably able to go into strong muscular contraction, and the hypothesis is set up that such contractions may cause sufficient driving force to cause invasion of the pancreas with bile. (5) The common duct sphincter is provoked to resistance not only by an acidity of the duodenal contents, but also by sudden distention of the common duct through abnormal and unexpected rises of pressure in the gall-bladder.

6. Chronic Cholecystitis without Stones: Diagnosis and Treatment.—Willy Meyer makes a plea for more careful diagnosis of chronic cholecystitis. He has sought the opinion of seven leading radiologists as to the diagnostic capabilities of radiography, from which he concludes that the assistance which the surgeons hope will be rendered by radiography in the fixation of the diagnosis of cholecystitis without stones, is in its evolution, but at present, in the hands of experts, may be relied upon as an aid in clearing up cases of recurring or permanent pain in the upper abdomen, as far as the gall-bladder carrying stones is concerned, in 30 to 50 per cent. of the cases. He says "pain in the upper abdomen" because it must be borne in mind that the subjective pain due to a diseased gall-bladder may be exceptionally confined to the left side of the upper abdomen, and may be noticed by the patient over the left costal arch and left side of the chest only. Since paying attention to this phenomenon he has noticed with increasing astonishment how frequently patients suffering with gall-stones complain of spontaneous pain in the region of the sigmoid, and not seldom also tenderness at this point. This observation has been made particularly in emergency cases sent to the hospital with the tentative diagnosis of intestinal obstruction. Inasmuch as a number of authors think the cholesterol test of the blood cannot be relied upon in the diagnosis of cholecystitis with stones, to say nothing of cholecystitis without stones, it is fortunate that the analysis of duodenal contents has stepped in and has proven one of the greatest advances clinical medicine has made in the course of the last five or six years. As a result of personal work done in this direction the author expresses the opinion that the Einhorn method of collecting the duodenal contents in a fasting condition deserves confidence, and is to be considered a reliable procedure. The Meltzer-Lyon test has little, if any, value in diagnostic respects, but it promises to be of great importance in the treatment of diseases of the biliary system. Clinically cholecystitis without stones takes the same place in the upper abdomen as chronic appendicitis does in the lower. Chronic appendicitis is generally conceded to be a surgical disease requiring operation. Chronic cholecystitis still belongs to the borderland. Though not as treacherous and deadly in its sudden attacks as the inflammation of the appendix may be, it nevertheless often undermines the patient's health, and should, therefore, as a rule require the removal of the gall-bladder. It appears that cholecystectomy is as well borne by the human system as appendectomy. The principal technical advantage, accruing from the preliminary more refined diagnosis of diseases of the bile tract in the presence of gall-bladder, combined with appendicular disease, is the indication derived from it with reference to the place of the incision. Knowing *before* operation that the bile is pathologic, one cuts down on the gall-bladder and pulls up the cecum with the appendix, instead of cutting down on the appendix and then palpating the gall-bladder region, as done heretofore. Inspection and palpation of the gall-bladder at operation must cease to render the only indication for cholecystectomy. The *quality* of the bile, determined systematically, with the help of the duodenal tube *previous* to operation, and, if desired, the condition of the bile aspirated from the gall-bladder *during* the operation, must guide the surgeon in his decision of where to incise and what to excise.

The Practitioner.

October, 1921. cvii, 4.

1. The Pathways of Infection in the Rheumatic Group of Diseases. G. L. Kerr Pringle.
2. Empyema in Childhood. Frederick C. Pybus.
3. The Uses of Diathermy in Dermatology. W. Knowsley Sibley.
4. Uterine Hemorrhage and Its Treatment by the Galvanic Current. Agnes Savill.
5. The Prevention of Chronic Gonorrheal Urethritis. M. W. Browdy.
6. The Therapeutic Uses of Anterior Pituitary Gland. Thomas Bodley Scott and F. W. Broderick.
7. The Physical Treatment of Enteroptosis. Cortlandt MacMahon.
8. Anxiety. W. J. Jago.
10. General Practice and Puerperal Fever. A. Campbell Stark.

2. Empyema in Childhood.—Frederick C. Pybus bases his remarks on the first 100 consecutive cases operated on by him at the Hospital for Sick Children, Newcastle-on-Tyne. The common cause of empyema in children is the pneumococcus, this organism being present in this series in forty out of fifty-nine cases examined bacteriologically. The condition is most fatal in children under two years of age. Males are more commonly affected than females, the ratio being sixty-one of the former to thirty-nine of the latter in this series. The most important sign is dullness. Contrary to what might be expected, in most cases bronchial breathing and moist sounds can be heard over this dull area. It is this unexpected sign which accounts for so many cases of empyema being overlooked, and until this is generally realized there must be a delay in recognition and operation. In patients presenting a swinging temperature and dullness over the lung following pneumonia, the diagnosis of empyema is nearly certain. In all cases of doubt the exploring needle should be used. Aspiration for empyema is only advisable if the patient is too ill to stand incision of the chest wall, or when the condition is bilateral. Apart from this, the empyema must be opened wherever it is situated, but the majority can be opened at the optimum position, about the seventh or eighth interspace in the mid-axillary line. The author has found local anesthesia (novocaine) safer than chloroform or ether, and has the further advantage that it allows the child to be fed up to and, if necessary, during the operation, so that no starvation may result. Resection of a rib was practised in 75 per cent. of the cases in this series. More recently, in a few cases, the empyema was opened more widely, all the contents evacuated, the cavity washed out with flavine solution, and the wound almost entirely closed. While it is too early to speak dogmatically of the results, on the whole they show an improvement, and any measure which lessens the length of time necessary for drainage will be of great advantage. The mortality in the present series was 24 per cent., but many of these cases were gravely ill at the time of operation and died from general infections. The improvement of results lies in earlier recognition and operation, or the discovery of some specific remedy. The pneumococcal cases do better on the whole than those in which the streptococcus is the etiological agent.

6. The Therapeutic Uses of the Anterior Pituitary Gland.—Thomas Bodley Scott and F. W. Broderick consider conditions due to abnormal anterior pituitary secretion in two groups, those of pre-adolescence and those of post-adolescence. The former are chiefly defects of growth and development, and the latter chiefly of function. The functional failures of adult life are often the result of unrecognized developmental faults in youth. This points to the importance of careful observation in childhood. When we see children developing in a hesitating way, both in body and mind, not going straight, we are apt to think of it as a character deficiency, or we call it laziness or wilful stupidity, but it is nearly always endocrine deficiency. Anterior pituitary gland often combined with thyroid extract has been shown to be very effective in these developmental

deficiencies. This type of therapy has been effective in enuresis in both sexes, in epilepsy, and in premature senility due to endocrine deficiency. From the fact that the anterior pituitary gland governs bony growth, it seems possible that it may have some action on the calcification of the teeth. The work of one of the authors seems to point to a pluriglandular syndrome being responsible for dental caries. In a former paper the writers present evidence that after acute fevers the titration reaction of the saliva is toward a loss of alkalinity, and that this can be overcome by feeding with a plurigland containing hormones that increase the assimilation of lime salts. It is suggested that organotherapy is able to increase the calcification of teeth, both enamel and dentine, after eruption. Feeding experiments in rabbits in which plurigland was used appear to add confirmatory evidence to this suggestion.

Schweizerische medizinische Wochenschrift.

November 3, 1921, II, 44.

Broncholithiasis.—Leuw states that hitherto this affection has belonged wholly to the pathologist. Clinical cases are excessively rare, and the author is evidently unable to locate a prior case report. Yet the condition itself cannot be so infrequent as appears. The patient was a laundress of 32, first seen in June, 1916. She complained of headache, a cough and a pain under the sternum. The history was negative. Physical examination brings to light nothing of importance. The patient was given Dover's powder and told to come back. She next complained of constriction of the chest, and although the *status quo* was unchanged the author was summoned later to the patient's home to avert suffocation. The patient seemed to be at the close of an asthmatic paroxysm. There was a small quantity of peculiar sputum which threw light on the case by suggesting a pneumonic focus, and the patient was carefully watched, but nothing developed. Under narcotics the distressing symptoms vanished for the time and the author adhered to his diagnosis of bronchial asthma. But several days later a similar crisis waked the patient in the night. She was found in orthopnea, but neither laryngospasm nor bronchospasm accounted for the symptoms. Patient denied having inspired a foreign body. For want of a better diagnosis the author injected morphine for asthma, but soon after, in a paroxysm of choking and retching, patient expelled a hard object which proved to be a broncholith, and the symptoms at once subsided. Since then she has been free from symptoms and the *x*-ray shows no mineral deposit in the chest.

Schweizerische medizinische Wochenschrift.

December 1, 1921, II, 48.

Pathogenesis of Syphilis Maligna.—Umansky of Professor Naegeli's Dermatological Clinic at Berne, writes comprehensively on this subject. He enumerates the views which have heretofore served to explain individual cases, or which have been put forward to account for malignant syphilis as an entity. First comes mixed infection, which theory antedates our modern knowledge of symbioses. It was assumed by Tarnowsky that in malignant syphilis an unknown was added to the ordinary virus of the disease. The same view is upheld to-day in certain quarters, although no superinfection has ever been shown by bacteriological studies. Sahli is one of the more recent champions of the mixed virus hypothesis. The second view mentioned is that of resistance weakened by antecedent dyscrasia or coincident disease. It is not disputed that many factors serve as predisposition to severe course of syphilitic infection —old age, alcoholism, malaria, etc., but this cannot be the motivation because malignant syphilis attacks the young and robust. Difference in virulence on the part of the spirochetes is a very plausible view, but animal experiment seems to negative it, although the subject is far from closed. Clinically mild and malignant syphilis have been contracted from the same public women at the same time, which is sufficient to add this view to the discard. The fourth view discussed refers to a virgin character of the soil which makes necessary the belief that the entire race has at some time been tainted with syphilis and that those who have, as it were, miraculously escaped the taint contract the disease in its full form. Far-fetched as it sounds, this theory cannot be hastily passed over. Opponents who call attention to the fact that one brother contracts mild and another malignant syphilis may of course receive the reply that Mendelism could explain this anomaly. Neisser, who is the champion of the virgin soil view, candidly admits that he has seen a reinfection pursue a far more severe course than the original attack, although the reverse should be and commonly is the case. In the case of aggravated second infection, we might assume, of course, that the natural defence had been exhausted in meeting the first attack, but this would not get us any further toward a solution of the problem. The author states that the entire hypothesis of weakened defense to explain malignant syphilis involves a begging of the question, as no evidence in favor of this view has yet been adduced. Hecht, however, has sought to establish a criterion for absence of antibody formation in the failure of the lymph nodes to swell after infection and of the roseola to appear, both phenomena meaning for him that there is a production of antibodies. This does not hold good in practice, for these phenomena may not be present in certain cases of mild syphilis. Failure of a positive Wassermann is a third objective criterion cited by Hecht as often seen in syphilis maligna, but the author does not concede the value of this evidence, for there is other problematic behavior on the part of this reaction which is not readily explained, as for example, its negative behavior in certain alcoholics. The failure of the mercurial treatment in malignant syphilis is also attributed by Hecht to inability of the system to manufacture antibodies, but other antisyphilitic treatment also fails at times, and this explanation hardly suffices to cover the total lack of response to treatment. Umansky would eliminate any hypothesis which explains malignant syphilis by failure to develop antibodies and proposes a view which explains the entire disease picture in a spontaneous fashion. The latter comprises rapid course and involvement of the entire organism, absence of lymphnode reaction, refractory behavior toward treatment, etc. In other words, there is an abnormal reaction toward the syphilitic virus which has been termed by Naegeli an allergic reaction, an oversensitiveness to the virus. This behavior may be compared with other allergical phenomena. There are all degrees betwen ordinary and allergic syphilis and the malignant form is the extreme end of a series. In other words, the author makes the offending element an excess of antibody pre-existent in the tissues. When the spirochetes meet antibodies in excess the reaction is not one of the ordinary type, but a destructive lesion. In other words, spirochetes cannot be destroyed *en masse* without "breaking eggs." Malignant syphilis is not the same affection as precocious tertiary syphilis, but both have the same mechanism—the few spirochetes found in such lesions means that they have mostly been wiped out by the excessive defense put up. Destructive lesions and melting away of the tissues do not mean weak defense or no defense, many spirochetes, higher virulence, but the very opposite—a frontal attack by the organism which is costly for the latter as well as for the spirochetes. The remedies of the physician, whether mercury, or arsenic, or iodine, simply cannot get into the fight—the latter being what the Irishman called a strictly private contest in which outsiders are not allowed to participate, or like a row between man and wife. The author would drop the expression "syphilis maligna" for "allergic syphilis."

Gazette des Hôpitaux.

September 27-9, 1921, xciv, 76.

Cessation of Status Epilepticus (Jacksonian) Under Lumbar Puncture and Intravenous Injections of Distilled Water.—Leriche of Lyon refers to an earlier communication in which he agitated the possibility as mentioned above. Cases are now recorded in which the two resources separately tried by different surgeons have given a favorable result. The author was consultant in the second case. The first one occurred in the practice of Covert of Bourg. It was a military traumatic

case—a bullet in the right frontal region—in which the Jacksonian epilepsy had relapsed after an apparent operative cure. As there was hypertension of the spinal fluid Covert punctured the cord. The patient at the time was in status hemiepilepticus, and obtained a complete cessation of the convulsive phenomena. There had been no recurrence some months later and the patient is regarded as definitely cured. An intense cephalalgia with meningeal symptoms and fever was responsible for the puncture. The other case occurred in the practice of Gravier, physician to the Hotel Dieu, Lyons, in which there had been no injury, but a history of digestive troubles and migrainoid symptoms. There was a vague history of partial paralysis of the arm of short duration. While under treatment localized convulsions appeared, involving the face and arm, and eventually the entire side. Lumbar puncture showed hypotension of the spinal fluid and the author, called in consultation, tried the experiment of injecting 40 c.c. of distilled water into a vein. The crises which had become continuous ceased, although the diagnosis had been made of gumma or tumor of the brain.

Gazette des Hôpitaux.

November 15-17, 1921, xciv, 90.

Uremic Gastroenteric Ulcers.—Lemierre and Pièdeliévre contribute a monographic article on this subject which was first described by Rayer in 1839, and which now has an extensive literature. Gastric ulcer of uremic origin is very rare in comparison with the enteric location. The latter are most apt to occur in the terminal portion of the ileum, but have been found from the duodenum—to which they have at times been limited—to the cecum and even to the rectum. It being conceded that they are largely autopsy finds one must ask if they ever possess clinical significance. As in the case of other ulcers they may cause severe pain and hemorrhage, under which circumstances they suggest threatened perforation. They have caused vomiting of both red and black blood, and both kinds have also escaped by the rectum; and when they occur in the colon dysentery has been closely simulated. In the clinic the patients have almost invariably been recognized as the subjects of digestive uremia, so that there has been little or no confusion with ordinary gastric or duodenal ulcer, dysentery, etc., when the patient had been properly examined. In this syndrome we find anorexia, gastric intolerance to food and especially diarrhea, with emaciation, pallor, asthenia, and some of the evidences of Bright's disease, such a retinitis, the authors also laying much stress on pericarditis. These lesions may not be recognized until a systematic examination is made. The diseases which have to be excluded, since they might be masked by the picture, are cancer of the stomach and pernicious anemia.

Le Progrès Médical.

December 3, 1921, xlix, 49.

Inguinal Lymphogranuloma.—Bory describes a condition which might be termed pseudo-chancroidal bubo, traces of which may be found in the writings of bygone clinicians. It is apt to cause much confusion in diagnosis for in addition to syphilis and chancroid it could suggest a tuberculous lesion and even bubonic plague should the latter prevail in the vicinity. While at first the bubo might appear to have originated de novo accumulation of data shows that a slight peripheric lesion may usually be found somewhere on the genitals. Aside from the diseases above mentioned the appearance of the bubo might under certain circumstances suggest Hodgkin's disease, but its unilateral location and the suppurative tendency should usually suffice to exclude this affection, as well as syphilis in pure infection. The benign character of the lesion becomes evident under continued observation and it is only at the start that confusion could arise. With this much conceded the name applied by some writers of benign subacute lymphogranuloma may answer, although this takes no cognizance of its peripheral origin. The size of the nodal enlargement is very limited—it never exceeds that of a small English walnut. Aside from a more subacute and protracted course the condition closely simulates chancroidal bubo or a suppurating tuberculous gland; for after a latent period the skin becomes reddened, the mass shows points of suppuration and the fistulæ produced after evacuation of the pus tend to persist. Suppurating gumma is at times suggested. No suppuration *en masse* and no ulceration have been reported. The fistulæ may or may not close if left untreated, but the lymphnode swelling itself does not tend to subside at all. There may be several openings and in certain cases the mass is riddled with them. There is no mention by the author of actinomycosis in this connection. The petty lesions on the genitals do not present anything characteristic and apparently may be absent in some few cases but often they resemble herpetic and even chancroidal lesions, making diagnosis difficult, although it is an easy matter to examine for spirochetes, Ducrey's bacillus or Koch's. The author describes one case with extreme detail. The début suggested chancroid with bubo and at the same time the genital sore behaved much like a herpes vesicle of abortive character, being single. Since an atypical chancre could also have been present the smears and serological tests were made with great care and inevitable negative results. The patient recalled that he had a precisely similar experience one year before which was evidently regarded as syphilitic, one seroreaction only having been faintly positive. In the present case Bory made a biopsy of the preputial lesion and later examined pus from the bubo—always with completely negative results. In addition a nodular peno-inguinal lymphangitis could be made out. Despite the absence of an exciting factor Bory was forced to conclude that the process was akin to the infectious granulomatous diseases including syphilis and tuberculosis on the one hand and some of the lymphogranulomatoses on the other. From one case on record it appears that intravenous emetine caused the disappearance of the infiltration, while the *x*-ray would doubtless be efficacious.

François Franck, Experimental Physiologist and Military Hero.—The laboratory worker often risks his life in connection with biological, chemical and other experiments and in time of war shows the same altruistic courage. The career of the late experimental physiologist, François Franck, during the Franco-Prussian war is summed up briefly in an article in *Le Progrès Médical* for December 3, 1921, xlix, 49. When the war broke out in 1870 our subject was an interne in the Saint-Andre Hospital, Bordeaux. He at once joined the squadron known as the Girondine Scouts, composed of sons of the leading families of Bordeaux. Having escaped the rout which decimated this body at Varise, he next fought in the Army of the Loire and being a fine horseman, often served as *liaison* officer, despite his medical rank. In this capacity he was struck in the thigh by a shell and captured by the Prussians. Technically a spy he was tried and condemned to death and was taken to Saarbruck where temporary fear of reprisals on the part of his captors saved him from execution. Franck always thought of escape and proposed daring attempts at prison or guard delivery which were too radical for his fellow prisoners. Once when it would have been possible for one man to escape in safety and Franck had won the lucky number in the raffle he deliberately made over his chance to the father of a family. Finally the fear of reprisal having left his captors there arrived the day before the death sentence. The moment had arrived for a desperate break for liberty and he seized upon it successfully, although he was forced to wander about disguised until the armistice. He then quietly resumed his internate.

The Devries Mutation Theory in Medicine.—Naegeli considers mutations as affecting disease exciters and observes that thus far no absolute proofs of bacterial mutation have been furnished. But mutations apparently affect human beings as seen when a slight personal deviation becomes a marked family trait. Here belong the hanging lip of the Hapsburgs and the tuft of white hair in the Dukes of Rohan. Familial diseases may be regarded in the same light, and bleeders, chlorotics and many other individuals may be looked on as mutants. —*Schweizerische medizinische Wochenschrift.*

Book Reviews.

NUT GROWING. By ROBERT T. MORRIS. Price, $2.50. New York: The Macmillan Company, 1921.

A SURPRISE awaits the reader who, from the title of this little volume, expects to find merely a treatise on the chemistry of soils and the technique of seeding, transplanting, grafting, and caring for nut trees. To be sure he will find all this, but first he will meet with a chapter entitled "General Notes," in which sociological and economic problems are discussed in their relation to the world's food supply. Dr. Morris contends that the Malthusian theory has no basis in actual facts because it has failed to take into account what he terms the "apædion" (alpha privative, paidion, child) index in relation to the cultural limitations of man and his domestic animals. In other words, Malthus and his followers have overlooked the phenomenon which the farmer knows as the "running out" of any given variety of cultivated plant or animal. He further asserts that the Malthusian theory to hold good would have to include the proposition that man is to remain stupid. He shows that with a proper appreciation of the food value of nuts and of the possibilities of their culture even in the waste places of the earth, if man is not impervious to a new idea, the grim specter of starvation need no longer dog his steps. The technical portion of the book can be understood without difficulty by the amateur agriculturist. In it the author describes with the aid of illustrations a method of paraffin grafting, in which he has made use of some of the principles learned in surgery, with the result that many difficulties heretofore encountered in tree grafting have been overcome. The method is applicable to all sorts of trees and promises to revolutionize nut growing. The sociologist and student of economics as well as the agriculturist will find the book of more than ordinary interest.

TEXT-BOOK OF EMBRYOLOGY. By FREDERICK RANDOLPH BAILEY, A.M., M.D., Formerly Adjunct Professor of Histology and Embryology, College of Physicians and Surgeons (Medical Department of Columbia University), and ADAM MARION MILLER, A.M., Professor of Anatomy, The Long Island College Hospital. Fourth Edition. With Five Hundred and Three Illustrations. Price, $6.00. New York: William Wood & Co., 1921.

THE changes in this fourth edition of this well known and popular textbook are not very extensive but, such as they are, are in the line of improvement. A number of new illustrations have been introduced to replace several which were less satisfactory. In this edition the plan has been adopted of describing the early stages of embryonic development consecutively as they occur in Amphioxus, the frog, the duck, and the mammal, instead of having separate chapters devoted to cleavage, gastrulation, and mesoderm formation, and then discussing these stages as they occur in the several forms of animal life. This is more satisfactory for it makes the none too easy subject of embryology less difficult for the beginner. A few changes, to keep pace with the new knowledge acquired in recent investigations—for even embryology is a progressive science—have been made in the later chapters on organogenesis and a chapter on fetal membranes has been added. Concerning the general plan of the work little need be said for this has been considered in review notices of the earlier edition, and it need only be added that the work of revision has made still better a book which for size, clarity of description, and excellence of illustrations was already among the highest in the list of treatises on embryology in the English language.

THE UNCONSCIOUS. The Fundamentals of Human Personality, Normal and Abnormal. By MORTON PRINCE, M.D., LL.D. Second Edition, revised. Price $3.00. New York: The Macmillan Company, 1921.

THE original edition of this now classical work appeared in 1914. In the preface to the second edition the author states that he has added four new chapters which deal respectively with the structure and dynamic elements of human personality, and the study of a special problem in personality in which these principles are involved, namely, the psychogenesis of multiple personality. Otherwise stated the lectures as originally delivered numbered twenty, but four were omitted in the first edition in order to reduce the size of the volume and these four are now restored. This increases greatly the value of the work, and is a boon to the reader because it incorporates much of the special work by Dr. Prince on Multiple Personality in the present volume.

BACTERIOLOGY FOR NURSES. By HARRY W. CAREY, A.B., M.D.; City Bacteriologist, Troy. Second Revised Edition. Philadelphia: F. A. Davis Company, 1920.

THE author was for many years lecturer on bacteriology in the Samaritan Hospital Training School for Nurses, Albany, and at the same time pathologist to the hospital. His lectures have served as a basis for the present work of 149 pages and nineteen illustrations. The total number of lectures and chapters is thirteen and they cover the practical aspect of the subject. Some of the subjects are pyogenic organisms, intestinal pathogenic organisms, immunity, sterilization and disinfection, pathogenicity of moulds and yeasts, bacteriology of water and milk, diseases due to protozoa, etc., etc. In the present edition the author endeavors to present the subject of complement fixation in a practical and simple way.

THE MAJOR SYMPTOMS OF HYSTERIA. By PIERRE JANET, Ph.D., M.D. Member of the Institute of France and Professor of Psychology in the College of France. Second Edition. New York: The Macmillan Company, 1921.

THIS work appears directly in the English language without the medium of a translation. The original edition goes back to 1907. As is known to its readers the fifteen lectures which comprise the book were delivered by the author at Harvard and the dedication is to the late Professor Putnam. The author heads the second edition with a long introduction. Since the book is one of lectures delivered in 1906 it was hardly practicable to make many radical changes. The original conception of hysteria as a neurosis, as based on observations of the disease in the Salpêtrière, with special reference to the somatic manifestations, is retained; in other words these are the "major symptoms," chiefly involving the nervous system. The psychology of hysteria, the socalled conversion, suppression, symbolism, etc., as exploited by the Viennese is not antagonized, but the older nomenclature and conception of the disease are retained. Freud is mentioned casually a few times and Stekel and other disciples not at all. Evidently controversial matter is avoided. The sex element is not mentioned at all. Every one interested in Freudian lore should read this volume in order to comprehend the possibility of a discussion of hysteria along the most conservative of lines.

LEHRBUCH DER UROLOGIE. MIT EINSCHLUSS DER MÄNNLICHEN SEXUAL-ERKRANKUNGEN. Von Prof. Dr. LEOPOLD CASPER, Universitätsprofessor in Berlin. Dritte, neu bearbeitete und vermehrte Auflage. Berlin and Vienna: Urban & Schwarzenberg, 1921.

THIS well-known textbook was originally issued in 1903 and reissued with important additions in 1910. The author departed from the usual procedure of urologists by featuring chapters on socalled medical nephritis. The delay of eleven years in publishing the third edition must doubtless be ascribed to the war. With such long intervals between editions it stands to reason that the original chapters must undergo more or less revision and rewriting to keep abreast of the times. In the third as well as second edition the author lays stress on the sections on medical nephritis and renal diagnosis. In a work of but 600 pages devoted to the entire field of urology, many subjects must be slighted and the book must be largely a record of personal experience. The American urologist can hardly understand the omission of all reference to prostatic and vesicular focal infection with especial reference to joint affections; while there are but a few lines on the entire subject of the electrical and *x*-ray treatment of urological affections, with the exception of the almost outlawed Bottini's galvanocaustic operation, which is described at length. The book is behind the times in several subjects.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON OBSTETRICS ANE GYNECOLOGY.

Stated Meeting, Held October 25, 1921.

DR. HAROLD BAILEY, IN THE CHAIR.

Sarcoma of Uterus in Infant.—Dr. STAFFORD MCLEAN reported this case. He stated that sarcoma of the uterus was extremely rare in infancy and childhood. Only twelve cases were reported in the literature. Primary sarcoma of the vagina, however, was not so unusual. The case he reported came under observation in April, 1920, and was followed for sixty-nine days, until it terminated in death. At the time of coming under observation, the baby exhibited pallor and had had a bloody discharge from the vagina for two months. The birth weight of the infant was eight pounds; she was born at full term; delivery was normal. The baby was fed on milk powder and sugar. The child was having four or five stools a day. The appearance of the infant was that of a well nourished, well developed child. The head was normal, there being no cranial tabes. The heart, lungs and abdomen were absolutely normal. There was no enlargement of the lymph nodes. There was bleeding from the vulva. The blood count showed 2,800,000 red cells and 14,800 white cells with a differential count of 40 per cent. The uterine growth involved not only the uterus but seemed to involve adjacent tissues and extended close to the rectal wall. A specimen was examined by Dr. Martha Wollstein, who reported that it was sarcoma. Three radium treatments were given at intervals of two weeks, the dose being 100 millicuries for three hours. There was no oozing after the first treatment. Six weeks from the time of admission, the mass was well down in the abdomen and about the size of an adult uterus. The child suffered from anorexia and showed extreme pallor. She failed rapidly. The autopsy findings and the pathologist's report would be published later.

Dr. HAROLD BAILEY said that one frequently heard of sarcoma of the kidney in young children, but it was extremely rare to hear of sarcoma of the uterus. A feature of particular interest brought out by Dr. McLean was that one child with sarcoma of the uterus had been cured by operation. The case reported was seen by Dr. Studdiford, Dr. Downes and the speaker, and they all felt that it was inoperable condition. Only one finger could with difficulty be introduced into the vagina. By rectal palpation a considerable mass could be felt which extended beyond the outline of the vagina and uterus. Autopsy showed an abscess cavity opening into the vagina and filled with sarcomatous tissue. Treatment with radium was hopeless though they had had some remarkable results with large polyhedral cell growths and in large round cell tumors. They had treated one woman with sarcoma, proven by operation, where the tumor extended into the broad ligament; she was treated only by raying with massive doses on the surface and through the vagina. Six months later she was again operated upon an another clinic. The pelvis was found normal. When she learned this she wanted to bring suit against the original surgeon on the ground that he had performed an unnecessary operation. In radiating this infant a small applicator was used, but one could get but a short distance into the vagina, and with the finger in the rectum the location of the capsule was determined. There seemed to be some immediate results. In view of the fact that they were unable to tell what was the proper skin dosage they used one-quarter the adult dosage of radium from the outside of the abdomen. However, they apparently hit the correct dosage because there was an erythema. At autopsy a small opening in the culdesac was found, and it was possible that the silver wire punctured the wall of the vagina. Dr. McLean's case was exceedingly interesting inasmuch one of only about a dozen similar cases reported in the literature.

Pyelitis in Pregnancy.—Dr. HARBECK HALSTED presented this paper, which was based on 24 cases of pyelitis during or immediately following pregnancy, occurring at the Sloane Hospital for Women, during the two years from July 1, 1919, to July 1, 1921. He stated that these cases were treated under the direction of Dr. W. E. Studdiford, Director of Sloane Hospital, and Dr. W. E. Caldwell, Associate Director. During the above period there were 3,553 women delivered, making the incidence of pyelitis about 0.7 per cent. Pyelitis was of common occurrence in non-pregnant women and girls, but seemed to be considerably more common during pregnancy. The inciting organisms in this series of cases had been nearly always the *B. coli communis*, mostly alone, but occasionally associated with the streptococcus or staphylococcus, and in one case an unidentified organism closely allied to the *B. coli communis* occurred in pure culture. The route by which the infection reached the kidney pelves was still unsettled. He thought it probable that in different cases different routes were taken by the bacteria. However, infection through the blood stream was probably the most common. The most important contributing cause of the infection seemed, undoubtedly, to be an interference with the free outflow of urine from the ureter with consequent hydroureters and hydronephroses. Most writers on the subject took the attitude that the ureter was compressed by the enlarged uterus, but it seemed to him that a more probable explanation was that it was due to the right torsion of the uterus with some pull on the fascia that supported the uterus, causing a constriction of the lower ends of the ureters as they passed through this fascia. Pyelitis was more common in primiparae than in multiparae. This was probably due to the tearing and stretching of the fascia that supported the uterus by the passage of the first child, rendering the constriction of the uterus less common in subsequent pregnancies. Further contributing causes seemed to be constipation, bad teeth, infected tonsils, or other focal infections. In this series there were two types of onset. First, a slow onset with gradually increasing symptoms; second, an acute onset with a chill, high fever, rapid pulse, and usually a severe pain in one or both costovertebral angles, with usually frequent and painful urination. The above mentioned symptoms with blood or pus and bacteria in the urine should always lead one to suspect pyelitis. If one also had tenderness over the bladder, with or without enlargement of the kidneys, the diagnosis was fairly complete. A culture should always be taken from the bladder and, if there was still any question, the patient should be cystoscoped, the ureters catheterized, and cultures made from the urine from each kidney. They had not hesitated to cystoscope these patients no matter how high the temperature or pulse; although it was probably better to do it in an afebrile period. The cystoscopy with the drainage of the overfilled kidney pelves gave temporary and occasionally permanent relief. The cystoscopic findings were apt to be a bladder that was not very irritable; the walls of the bladder were usually moderately congested with more or less true inflammation, always most marked on the trigone and about one or both ureteral openings. A number of writers claimed that the damming back of the urine in the kidney pelvis was due to a constriction in the ureter caused by inflammation and congestion of the mucous membrane and hence came after and not before the infection. The writer was not entirely prepared to accept this view, because in autopsies on pregnant women who had had no indication of pyelitis during life marked dilatation of the ureters was frequently found. Too much importance should not be placed on a bladder culture, as they were not only often contaminated, but the cultures from the bladder of pregnant and early post partum women often showed a *Staphylococcus albus*, less often a colon bacillus or streptococcus, usually singly, but often together, even when there were no indications of any inflammation. The conditions most often confused with pyelitis were post partum infection, malaria and typhoid fever. The treatment of pyelitis in both pregnant and nonpregnant women was still under discussion, and a great many men differed widely in their management of these cases. They had followed various methods in this series of cases and before, and the following was the procedure they were now following: During the acute symptoms, absolute rest in bed. Raising the head or the foot of the bed, and in the pregnant patient, if strong enough,

the knee-chest posture twice a day for a few minutes. Fluids were forced. Rapid alkalinization of the urine with large doses of alkalies, usually using sodium bicarbonate, a dram every two hours with one-half a dram of sodium or potassium citrate. This treatment often relieved the symptoms, brought down the temperature quite promptly, and cleared the urine of pus; but in none of their cases had they been able to render the urine sterile by these means. After the urine had been kept alkaline for one or two weeks, depending upon the symptoms, they stopped all the alkalies, even in the colon irrigation, and changed to hexamethylenamine and sodium benzoate, giving 10 grains of each every three or four hours. This was kept up for two weeks if the patient showed no signs of bladder or kidney irritation from the hexamethylenamine. After a few weeks of hexamethylenamine and sodium benzoate treatment, they went back to the alkalies, and kept up the alternation until the patient was well and the urine sterile. Urine cultures should never be taken while the patient was taking any of these medicines, especially the hexamethylenamine, as under these circumstances it was practically sure to mislead by being sterile, whereas it really was not as the drug killed the organisms in the test tube. If very soon after the urine became alkaline the patient was not much improved, a cystoscopy should be done and both ureters catheterized and the kidney pelves washed with an antiseptic. They usually used 20 or 30 per cent. solargentum or argyrol. Not more than 5 c.c. should be injected into the kidney pelvis and most of this should be allowed to run off through or around the ureteral catheter before it was withdrawn. This treatment could be kept up from one to three times a week until negative cultures were obtained. There was nearly always an associated cystitis which was treated by the instillation of 5 to 10 c.c. of 20 to 30 per cent. solargentum or argyrol which were allowed to remain in the bladder for ten to fifteen minutes. This treatment was satisfactory in the early months of pregnancy, but in the later months it had been quite unsatisfactory as had all other other methods, with the single exception of the induction of labor or abortion. Colonic irrigations with 2 per cent. sodium bicarbonate if the patient was on the alkalies, or with saline if on urotropin, had seemed to help. If despite all treatment, the patient grew progressively worse the induction of labor or abortion should be considered. This procedure nearly always brought about a rapid change for the better.

Dr. HENRY DAWSON FURNISS said he thought Dr. Halsted had presented the subject very well. He did not believe that pyelitis was limited to pregnancy or that the pyelitis of pregnancy had very few peculiarities differentiating it from pyelitis at other times. He thought the percentage of 0.7 of one per cent. which Dr. Halsted reported was far less than we have had on the gynecological service at the Post Graduate Hospital. There was never a year when there were not quite a number of cases that developed pyelitis after operation. When after operation there was a rise in temperature with no exudate, no wound infection and no respiratory trouble, one should be on the lookout for renal involvement. At times the symptoms might be very slight. There might be just slight pain or discomfort in the back and one would find the patient with her hand under her back. This pain might be elicited by tapping the patient on the back or by deep palpation. This usually lasted only two or three days. Dr. Halsted spoke of the way in which the kidney became involved. He, Dr. Furniss, believed the majority of infections were through the blood stream, but a few showed all the evidence of having ascended along the course of the ureter. There would be a slight temperature, and pain which gradually passed up along the course of the ureter. It was a question whether the infection ascended along the ureter by the way of the lymphatics or was a surface infection of the mucosa. He believed, however, that as a rule infection was by way of the blood stream; the infection was first in the parenchyma and localized later in the kidney pelvis. If lavage of the pelvis was instituted during the first few days the results were not very satisfactory because the infection was still localized in the kidney substance. He did not believe the infection was cleared up so much by the antiseptic property of the drugs as by the active hyperemia that was set up. Dr. Halsted spoke of hematuria and of ecchymotic areas limited to the trigone. It had been his experience that the trigone was no more involved than the rest of the bladder, but if one did a cystoscopy during pregnancy the bladder walls were so collapsed by the pressure of the enlarged uterus that one did not see the entire bladder wall so easily as in the nonpregnant state. One would find ecchymotic areas all over the bladder wall, which made one think the infection an embolic process. In one case of pyelitis in which there was hematuria for one or two days he found on cystoscopy that there were as many as fifty ecchymotic areas scattered over the bladder. He believed most of these infections came through the intestinal tract. Kidd claimed that bacteria were often carried into the blood stream of every individual, and it was only when there was lowered resistance as from exposure to cold, wet, or from excessive fatigue that the organism was unequal to combatting the infection. In the pregnant woman there was greater hydronephrosis than in the non-pregnant, though even in the non-pregnant one found a moderate dilatation of the pelvis and ureter. In treating a pyelitis the pelvis of the kidneys should be well emptied before introducing the medicament. It was important that the pelves of the kidneys be thoroughly emptied as such drainage allowed the pelvis and ureter an opportunity to contract and regain tone. In pyelitis there was a marked swelling of the mucosa and the good effects of drugs was undoubtedly due to their shrinking the mucosa. Dr. Halsted spoke of nephrectomy. He did not think we were as radical in regard to nephrectomy as formerly. Often in pyelitis both kidneys were more or less involved, and we felt that conservatism was safer than taking out one kidney and leaving a slightly damaged kidney. It was not a question of the patient standing the operation of nephrectomy, but of getting well with a remaining kidney as badly diseased as the one removed. There were undoubtedly instances of the fulminating type in which nephrectomy was life saving.

Dr. A. RONGY regretted that Dr. Halsted had been called from the meeting because he disagreed with him and should liked to have had him here. To his mind the etiology of the pyelitis of pregnancy in a very large number of patients could be traced to a latent pyelitis which either complicated or followed the infectious and contagious diseases of infancy and childbirth. Particularly was this true of patients who had had scarlet fever in a severe form. These patients did well when their systems were not unduly strained but when pregnancy took place every secreting organ in the body was overtaxed so that a latent syphilis that had existed for a great number of years very often assumed an acute aspect and showed all the symptoms that were associated with this condition. Pregnancy very often led to a mechanical impediment to the flow of urine through the ureters and in that way caused disturbances in the pelvis of the kidney. He did not see how washing out of the pelvis of the kidney two or three times a week could benefit the patient for the involvement of the tissues was very much beyond where irrigating fluid could reach it. Catheterization of the ureters should be used for diagnostic purposes only. Patients who suffered from pyelitis complicating pregnancy should be kept in a sitting posture as much as possible, for in that way the weight of the pregnant uterus was prevented from pressing upon the ureters at a point where they entered the pelvis. Operative interference was very seldom indicated in this class of patients. If, however, the patient did not seem to improve, as indicated by constant rise of pulse and temperature, labor should be interrupted.

Dr. WILLIAM H. WELLINGTON KNIPE expressed the opinion that the incidence of pyelitis reported at the Sloane Hospital was too low for the reason that they had not reported pyelitis unless a cystoscopic examination had been made. In their series pyelitis was so common that they did not think anything of it. Frequently in cases in which there was a fever during the puerperium he believed there was a pyelitis. At the Gouverneur Hospital he felt confident that the incidence of pyelitis was five times 0.7 of one per cent. easily that. Their treatment differed a little from that at Sloane. They believed in posture and give urotropin, not in 10

grain doses which they thought inadequate, but in 60 grain doses daily and enough acid sodium phosphate to make the urine completely acid. The head of the bed was raised and fluids were forced, and 60 grains of urotropin daily were administered. If one did this there would be little need for other treatment. That was their experience. With this treatment they had had no occasion to employ lavage of the kidney. They had had cases in which they had used vaccines, ordinary stock vaccines, and the patients had responded to the treatment. Dr. Knipe thought conservative treatment was better in these cases. The temperature curve might keep up for some days, but he had never seen one of these patients who required operative interference. If treated conservatively these patients all got well.

Dr. HERMAN LORBER recalled that Dr. Halsted had said that the differential diagnosis of pyelitis was quite easy. He knew of a patient seven months pregnant who had pain and rigidity in the lower right quadrant and ran a temperature of 103°. The doctor who attended her assured him that the urine showed no pus cells. She was taken to the Hospital and the blood count should a high differential count. An operation for appendicitis was performed and a perfectly normal appendix removed. A catheterized specimen of urine later showed pus cells. The woman was delivered two months later and made an uneventful recovery. Attention might be called to the fact that pyelitis might cause symptoms very similar to those of appendicitis.

Dr. HARVEY B. MATTHEWS stated that he had had two cases similar to the one just reported in which the symptoms were those of appendicitis, though fortunately the patients were not operated upon. The diagnosis of appendicitis in one case was made by two surgeons and two general practictioners and in the other by two surgeons only. In a third case Dr. Humpstone made the diagnosis of pyelitis in a woman six months pregnant just as she was being prepared to be taken to the hospital for an operation for appendicitis. In one of the first two cases mentioned operation was advised but was delayed. In a short time both patients recovered.

Dr. WILLIAM P. HEALY said he was much interested in Dr. Halsted's paper, especially since it covered such a large number of cases studied so carefully. He was especially interested in the discussion on the treatment of pyelitis because some years ago he heard Dr. Furniss say that practically all cases of pyelitis should be treated by lavage of the kidney pelvis. His experience up to that time had been so uniformly favorable by simple medical treatment without cystoscopy or lavage that he was very firmly opposed to his point of view, but in the last two years he had had three cases which did not respond to the most approved methods of medical treatment in the effort to relieve the pyelitis, and relief was only obtained by catheterization and lavage of the kidney pelvis and then they were so promptly relieved that he was now quite convinced that some cases had to have that done in order to be cured. He had never had a case of pyelitis that had to have labor induced but he thought, as Dr. Halsted had said, that if the condition of the patient became serious that might sometimes be necessary.

Dr. BAILEY said he wished to bring out a point merely for reiteration. For years they had all adopted the conservative method of treating pyelitis. As Dr. Healy had said there were very few of these cases in which the kidney pelvis had to be emptied by catheterization. The whole question was what happened to the woman later on; did she develop pyelonephritis or was she cured? Merely because she had no fever did not mean that the pyogenic bacteria had been entirely eliminated. Many might continue to have pyogenic bacteria who felt comfortable and well. Another important point was the administration of all these drugs. He questioned the advisability of giving these drugs for three or four weeks; hexamethylenamine for two weeks and alkalies for two weeks. He did not see how the stomach could tolerate such treatment for such a length of time, especially when acid sodium phosphate was combined with urotropin.

Dr. W. E. CALDWELL said the point had been brought up as to a history of scarlet fever in these cases of pyelitis. In this series of cases Dr. Halsted tried very hard to get a history of previous pyelitis during childhood. He thought they all had the idea that a great many cases of pyelitis developing during pregnancy had their start in childhood. In this series of cases only three gave a history of pyelitis. The incidence of 0.7 per cent. was a surprise to them all. They had expected to find it a great deal higher, but as Dr. Halsted said, these were cases in which the pyelitis was proved by cystoscopic examination and bacteria were obtained from the pelvis of the kidney. In all cases that ran a temperature, a catheterized specimen of urine was obtained; in this way they had tried to get all the positive cases of pyelitis though possibly some were skipped. As to the treatment, he thought they were all agreed in regard to the advantage of keeping the patient in the upright position or in raising the head or foot of the bed to relieve the pressure on the ureters. The washing out of the pelvis of the kidney was not undertaken until medical treatment had been given a good chance to succeed. It had been rather astonishing how quickly in some of these cases in which medical treatment failed the urine cleared up after cystoscopic examination. Frequently on catheterization one obtained a large amount of urine filled with pus and the temperature came down to normal and remained so. If the temperature rose again the cystoscopy was repeated and drainage again established. Dr. Halsted had followed some of these cases for two years. There were only two cases that he was successful in making bacteria-free during pregnancy. In none of those cases in which the bacteria remained for a long time in the pelvis of the kidney without treatment outside of the ordinary medical treatment, did he succeed in making the urine bacteria-free. Eight of the 24, if he remembered correctly, showed exacerbations afterward and only by intensive treatment, putting argyrol in the pelvis of the kidney, did he finally succeed in getting them bacteria-free. Sodium bicarbonate and urotropin were rushed until the urine became alkaline and then just enough of these drugs was given to keep it alkaline. If the temperature did not come down they changed to acid sodium phosphate for a short time.

Pregnancy After Nephrectomy.—Dr. HARVEY B. MATTHEWS made this presentation, in which he said it was well known that after nephrectomy for any cause there was a compensatory hypertrophy of the other kidney, so that the urinary function was not decreased for any length of time after operation, and frequently this hypertrophy had taken place before the diseased kidney had been removed. Physiologists told us that the total amount of renal tissue possessed by normal individuals was three to four times what was actually needed to meet the ordinary demands of the organism. While chemical and microscopical examination following nephrectomy usually revealed complete return of renal function, in some instances this was not the case. In a goodly number of nephrectomized individuals albumin was present in the urine many years after nephrectomy. In about 25 per cent. of cases of nephrectomy for unilateral renal tuberculosis there was an abnormal condition of the remaining kidney, as was shown by albumin in the urine, irritable bladder. etc. For years there had been the feeling that pregnancy was greatly to be feared in a woman who had had a nephrectomy. In view of these facts the writer had made a study of 200 cases from the literature in which pregnancy occurred following nephrectomy; 37 cases collected in Greater New York, and 4 cases coming under his personal observation. Before analyzing this series of cases it might be noted that there were two classes of cases in which nephrectomy was performed. In one it was done for pyonephrosis, pyelonephrosis, benign tumor or cyst; in the other for unilateral renal tuberculosis or malignant disease. In the former group the remaining kidney was much more likely to be competent and remain so than in the latter. In the 200 nephrectomized patients collected from the literature there were 215 pregnancies, in 10 of which there were complications, and 2 died. In the 37 cases in Greater New York there were 43 pregnancies; five of these pregnancies were complicated by severe toxemia. In the writer's four cases nephrectomy was performed three times for unilateral tuberculosis and one for pyonephrosis; all of these patients had albumin in the urine ranging from 1 to 4 plus. These four nephrectomized

women had seven pregnancies and seven living children, with no serious complications. Blood chemistry observations in three of these women, as compared with three non-pregnant women with only one kidney showed the urine to be normal. Taking these cases all together there was a total of 265 pregnancies with 250 normal labors and two deaths; and 15 labors in which there were complications. From a study of these cases it would seem that pregnancy in the nephrectomized woman was little more hazardous than in normal women, provided the remaining kidney was functioning properly. Albumin occurred in a certain proportion of these cases, usually in the latter months of pregnancy, but if treated properly cleared up just as in the normal case with two kidneys. In 60 per cent. of the cases studied there was albumin from 1 to 4 plus during the latter weeks of pregnancy. Some of the nephrectomized women had albuminuria all through pregnancy. There was little to be said regarding the conduct of labor in nephrectomized patients. They stood morphine and anesthesia well. Chloroform, of course, should never be used for reasons needing no elucidation. Chloral hydrate and veronal were badly borne by these patients. Lactation was not interfered with in nephrectomized women, but if the nephrectomy had been done for unilateral tuberculosis of the kidney lactation should be prohibited. Marriage after nephrectomy was permissible if the remaining kidney has functioned normally for one year or more. If there were symptoms of renal insufficiency in the remaining kidney after marriage, pregnancy should not be allowed to take place and contraceptive methods should be employed. If nephrectomy had been performed for unilateral tuberculosis of the kidney pregnacy might be permitted provided the remaining kidney had functioned normally for three years or more. If nephrectomy had been performed for a malignant tumor pregnancy must never be permitted. Finally there was need of a full study of nephrectomized women with well worked up reports of urinary findings and blood chemistry on every case of pregnancy after nephrectomy.

Dr. A. RONGY stated that this paper would be very useful to those who practised obstetrics, for very little had been written on this subject by English or American clinicians. He recalled the first patient who came to engage him for her confinement and who told him one of her kidneys had been removed some three or four years previous to this time. He really was reluctant to accept her. Evidently he was not familar with the literature on the subject. However, in looking up the literature, he found there really was no cause for alarm, which practically coincided with what Dr. Matthews had said tonight. He had had three cases of pregnancy and labor in patients with only one kidney. In two the kidneys were removed for benign tumors and in one for tuberculosis. One of these patients had a great deal of albumin during the early period of pregnancy which gradually diminished until she reached the ninth month, when it reappeared in large quantities. At one time when the urine contained no albumin she passed as much as 120 ounces of urine in twenty-four hours. Dr. Rongy recalled a patient telling him that she had had seven children after one of her kidneys had been removed. On the whole it seemed that these patients stood labor and pregnancy very well.

Dr. W. E. CALDWELL said it was interesting that so many women who had had nephrectomy should go through pregnancy and labor with so little trouble. They could furnish another instance. They had had a patient who had had a nephrectomy and two subsequent pregnancies. This woman had had a nephrectomy for a perinephritic abscess. She had eclampsia both time. There was four years between the pregnancies. The interesting points in this case were that the systolic blood pressure was 220, the urine boiled solid while the blood chemistry was but slightly changed. After delivery the blood pressure dropped to 118 or 120 and the urine cleared up.

Dr. ALFRED M. HELLMAN cited a case of pregnancy following nephrectomy for tuberculous kidney that was now under his observation. The right kidney had been removed eight years ago. She was married five years ago and had a child 3½ years old. She was now in the fourth month of her second pregnancy and had had no complications in any way related to the nephrectomy. She had a slight uterine hemorrhage during the second month. She had had no albumin in her urine, and her systolic blood pressure had ranged from 95 to 110. He had been seeing her every week since early in July.

Dr. BAILEY stated that one of the cases reported in Dr. Matthews' paper was very interesting. When there was an elevation of the nonprotein nitrogen and high uric acid in the blood it was almost certain that the woman had a badly damaged kidney. One could estimate the years of life on the basis of such findings. In cases in which the total nonprotein nitrogen went above 100 the patient had a very short time to live.

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

ACTA SOCIETATIS MEDICORUM FENNICAE DUODECIM Tom. III Fasc. 1-2; Tom. II Fasc. 2-3; Tom. III Fasc. 1-2. Published by S. E. Wichmann (Editor) at Helsingfors, 1921.

SOLUTIONS—A Text Book for Nurses. By ELSIE M. SMITH. 59 pages. Price, $1.00. Published by C. V. Mosby Company, St. Louis.

SYNOPSIS OF MIDWIFERY. By Dr. ALECK W. BOURNE. 211 pages. Price, $3.50. Published by William Wood & Company, New York.

ANNEXITES NON INFECTIEUSES. By Dr. PAUL DALCHE. 54 pages. Price 4 francs. Published by L'Expansion Scientifique Française, Paris.

CLINICAL DIAGNOSIS. By Dr. C. P. EMERSON. Fifth edition. 726 pages with 156 illustrations. Published by J. B. Lippincott Company.

VICE AND HEALTH. By JOHN C. FUNK. 174 pages. Price, $1.50. Published by J. B. Lippincott Company, Philadelphia.

EPHRAIM MCDOWELL. By AUGUST SCHACHNER, M.D. 350 pages with illustrations. Price, $5.00. Published by J. B. Lippincott Company, Philadelphia.

ACUTE EPIDEMIC ENCEPHALITIS. By the Association for Research in Nervous and Mental Diseases. 258 pages with illustrations. Price, $2.50. Published by Paul B. Hoeber, New York.

THE SURGICAL CLINICS OF NORTH AMERICA, October, 1921, Vol. I, No. 5 (Mayo Clinic Number). 296 pages with illustrations. Price, $12.00 per year (6 Nos.) Published by W. B. Saunders Company.

DISEASES OF THE DIGESTIVE ORGANS. By Dr. CHARLES D. AARON. Third Edition. 904 pages with 164 engravings, 48 roentgenograms and 13 colored plates. Price, $10.00. Published by Lea & Febiger, Philadelphia.

EXOPHTHALMIC GOITRE. By Dr. WALTER EDMUNDS. 34 pages with illustrations. Price, 3s. 6d. net. Published by Balliere, Tindall & Cox, London.

THE SOCIETY OF THE NEW YORK HOSPITAL, Commemorative Exercises. 96 pages with illustration.

LES GRANDES FORMULES MODERNES DE LA NUTRITION. By TH. MERRILL and H. VIOLLE. Pamphlet of 12 pages. Published by Masson & Cie, Paris.

THE RELATIONS OF TUBERCULOSIS TO GENERAL BODILY CONDITIONS. 27 pages. Price, 2s. 6d. paper cover. Published by H. K. Lewis & Company, London.

EPIDEMIOLOGY AND PUBLIC HEALTH. By VICTOR C. VAUGHAN. Vol. 1. 688 pages with illustrations. Price, $9.00. Published by C. V. Mosby Company, St. Louis.

ESSENTIALS OF LABORATORY DIAGNOSIS. By F. A. FAUGHT. 523 pages with 11 plates and 78 engravings. Price, $4.50. Published by F. A. Davis Company, Philadelphia.

SUBMUCOUS RESECTION OF THE NASAL SEPTUM. By WILLIAM M. DUNNING, M.D. 97 pages with illustrations. Published by the Surgery Publishing Company, New York.

Medical History.

NEW BOOKS AND OLD

XXII. REGIMEN SANITATIS AND THE SALERNE SCHOOL.

By JOHN RUHRÄH, M.D.,

BALTIMORE, MD.

A NEW edition of the famous Regimen Sanitatis Salernitanum is a most welcome addition to medical letters, for in spite of some two hundred and forty odd times this work has been printed, it remains a rare book, more or less difficult to obtain and there are but few libraries boasting many copies. Any book that has approached a quarter of a thousand editions in various languages must have some merit. The one in question has so much that for centuries it was one of the chief sources of information on the subject of hygiene and diet. Now it has passed into a literary curiosity not very well known except to medical and other literati. To appreciate the school of Salerno we must go back to a monastery founded by Saint Benedict on the slopes of Mt. Cassino which is about midway between Rome and Naples. Saint Benedict is one of the outstanding figures in medieval Europe. To properly understand medicine in Europe in the middle ages, I would suggest the reading of Henry Adams' "*Mont St. Michel and Chartres.*" This gives one the atmosphere of the time; a few facts and the imagination do the rest. At Mount Cassino, Benedict founded a large monastery which had a stormy career. First it was sacked by the Lombards, then by the Saracens, but after being rebuilt a third time it took on new life, wielded an enormous influence survived until 1866 when it was declared "A National Monument" in which a school is maintained. The Library still has over 10,000 volumes, amongst them many early treasures of great rarity, to say nothing of manuscripts, papal bulls and similar material of extraordinary historical interest.

At Mount Cassino the Benedictines in the old days nursed the sick, and many the celebrated traveller who sought aid at the shrine and who, if the tales are to be believed, went away not unrewarded. A curious lot of stories are recorded. One tells how the Emperor Henry II of Germany while there fell into a deep sleep during which St. Benedict caused a bladder stone to disappear.

Despite the orders of Saint Benedict the monks not only cured but taught and more than one became a medical writer. Here Constantine, the African, eventually found refuge and devoted his days to translating, editing and writing. Largely through him flowed the channel of Arabic and Eastern medicine into Europe.

Far to the south lay a city of ancient lineage, Salerno, a smiling sea at her feet, behind her a pine clad mountain to temper the winds and perfume the air. Tradition has it that Salerno was one of the five cities founded in Italy by Shem, the elder son of Noah. The town dates back to the earliest time. In 194 B.C. it was a Roman colony and doubtless many of the later movements of peoples, as the Goths, the Lombards and others left traces in the place so favorable to health.

The Benedictines founded one of their monasteries in Salerno and soon the place was filled with shrines, physicians, students and patients. The crusaders and others carried the name throughout Europe, and the saying was *Urbs antiqua Salernum, celebrata per orbem.*

There were the usual shrines, the usual relics, the usual wonderful cures, the usual tales about them. Perhaps the most important shrine was that of St. Matthew, the patron saint of the town to whom Robert Guiscard erected a cathedral in 1070 after he captured the castle above after an eight month siege.

Salerno was far enough south to come within the sphere of Greek influence and the cast mantle of Hippocrates may be said to have in part made up the garb of the physicians who in their school carried out, at least to a certain extent, the Greek traditions. This is not the place to go into any extensive account of the authors of Salerno. Their names have an unfamiliar sound to most of us: Johannes Afflacius, two Cophons, Ferrarius, Archimatheus. The last named left some directions for the conduct of physicians, part of which are quoted from Daremberg in the introduction by Francis R. Packard in his introduction in the new edition. Platearius, Musandinus, and the celebrated Gilles of Corbeil (Aegidius Corboliensis) author of poems on the pulse and on the urine came later as did The Surgeons Ruggiero of Palermo and Rolando of Parma. These and others gave a lasting fame to the school of Salerno. In many of the writings occurs the phrase *mulieres Salernitanae* which has been politely rendered "the ladies of Salerno." To us moderns perhaps these women physicians are among the most interesting of the manifestations of the time of this medical school. A short but satisfactory account will be found in Withington's History of Medicine. Trotula was the most renowned, but one reads of Sichelgaita, wife of Robert Guiscard and of Stephonia with more interest. Their lives would make lurid moving picture scenarios. The last named lady's husband was killed by Emperor Otto III. She ensnared the Emperor and when ill cured him only to wrap him during his convalescence in a deerskin covered with corrosive poisons, so he died in great agony. But we must hurry on. Longfellow in his Golden Legend deals with the story of Salerno.

This legend was the story of Henry the Poor, Prince of Hoheneck, who became a leper and left his castle to dwell in retirement. He was told that he could not be cured until a spotless virgin was willing to die for him. The daughter of the farmer with whom he lived offered herself and the prince finally consented to accompany her to Salerno. On his arrival he found that he was cured so he married the maiden in the great cathedral. The many other interesting stories must be passed over.

One should not fail to read the account of Salerno as given in an essay by Sir Clifford Allbutt read to the Erasmus Club in Cambridge 1912. This may be found in the volume of his essays entitled: "Greek medicine in Rome."

The new edition is printed by Paul Hoeber, is dated 1920 and is a reprint of the English version by Sir John Harington. It is edited by Francis Packard who contributes "A History of the School of Salernum." Packard's account of the history of the school of Salerno is followed by a short essay

by Fielding H. Garrison entitled "Note on the Prehistory of the Regimen Sanitatis." He shows that "the School of Salerno was of purely laiacal character, a *Civitas Hippocratica* in the midst of monastic foundations." As Garrison says the tendency of the period was to collect scraps and stitch them together and pass off the resulting treatise as original. This he believes was the origin of the *Regimen Sanitatis*, which started with 362 verses, which Arnold of Villa Nova edited with notes. Subsequent additions raised the number of verses to 3520. Sudhoff believes that the poem had its origin in a prose epistle of Aristotle (De conservatione corporis humani) written for Alexander the Great, as many of the sayings are strikingly alike. It was not until the middle of the 13th century that the poem became generally known. Concerning the various editions: Sir Alexander Croke and Daremberg both give extensive bibliographies which may be consulted by those interested. The first translation into English, unless I err, was made by an Austin Friar, Thomas Paynell in 1528, who stated, "That this boke techying al people to governe them in helthe is translated out of the Latyne tongue in to Englyshe." Thomas Phaer who wrote the first book on the diseases of children to be printed in English made a prose translation from the French. This must have been popular as it was reprinted many times. Packard reprints the Latin text as published in 1830 by Croke. Another accessible Latin text is that of Zaccharias Sylvius, originally printed at Rotterdam in 1657 and reprinted by Dr. John Ordronaux in his poetical translation published in 1870.

Now as to the poem itself. It would take a volume to consider the various texts, editions and translations. The first printed edition appeared, presumably at Montpellier in 1480 with a commentary by Arnold of Villa Nova. This has been issued in the *original* Latin in 107 editions according to Ordronaux. It was first translated into German in 1474, into French in 1501, Italian in 1549, Dutch in 1658. In all some 165 or more editions have appeared. The Ordronaux volume is a delight. It gives the Latin on one page and the translation on the page facing. The introduction is full of interesting material. Ordronaux gives some account of the Leonine or rhyming verse, a subject that has been considered in detail by Sir Alexander Croke in his "Essay on Rhyming Latin Verse." In an appendix he gives the additions made to the text of Arnold of Villa Nova as given by Daremberg in his Paris edition of 1851. He also gives specimens of early English metrical translations as follows:

SPECIMENS OF THE ENGLISH TRANSLATIONS, OF WHICH THERE APPEAR TO HAVE BEEN THREE HERETOFORE MADE, VIZ: A. D. 1575, 1607, AND 1617.

The first, from a MS. in the library of Corpus Christi College, Oxford, dated 1575:

"The puisante Kinge of Brittannye
The schole of famous memorye,
Salernum, biddes him selfe to frame,
If healthe he woulde and kepe the same;
Geve cares noe place within thy brest;
Lett fretting furies be supprest;
Too muche of wine use not to swill;
Suppe you but lighte, eate not thy fill;
At meate to sitte soe longe a time,
To rise is not soe greate a crime;
At noone geve not thye selfe to slepe;
Nor use thye water for to kepe.

"He maye that liste this to observe,
Him selfe longe time in healthe preserve.
When physicke harde is to be hadd,
Three things may be in steede.
The minde in noe wise must be sadde,
Meane reste and diette muste thee feede."

The second, called the Englishman's Doctor, London, A. D., 1607: (This is the translation by Harrington).

"The Salerne Schoole doth by these lines impart
All health to England's King, and doth advise
From care his head to keepe, from wrath his harte.
Drink not much wine, sup light, and soone arise.
When meat is gone long sitting breedeth smart;
And after noone still waking keepe your eies,
When mou'd you find your selfe to nature's need,
Forbeare them not, for that much danger breeds,
Use three physitians still—first Dr. Quiet,
Next Dr. Merry-man, and Dr. Dyet."

The third, called the Regiment of Health, London, 1617:

"All Salerne Schoole thus writes to England's King,
And for men's health these fit advises bring.
Shunne busie cares, rash angers, which displease;
Light supping, little drinke doe cause great ease.
Rise after meate, sleepe not at afternoone,
Urine and nature's neede, expell them soone.
Long shalt thou live if all these well be done.
When physicke needes, let these thy doctors be,
Good diet, quiet thoughts, heart mirthful, free."

To these may be added Ordronaux's translation:

"Salerno's School, in conclave high, unites
To counsel England's King, and thus indites:
If thou to health and vigor wouldst attain,
Shun weighty cares—all anger deem profane,
From heavy suppers and much wine abstain.
Nor trivial count it, after pompous fare,
To rise from table and to take the air.
Shun idle, noonday slumber, nor delay
The urgent calls of Nature to obey.
These rules, if thou wilt follow to the end,
Thy life to greater length thou mayst extend."

Sir John Harrington's edition was first published in 1607. He was considerable of a writer and as Packard says: "one of the most characteristically Elizabethan of the courtiers of Queen Elizabeth." His writings are said to have a leaning to what we would now perhaps style the Gallic tendency. There is an article by Adami on Harrington in the Johns Hopkins Hospital Bulletin for October, 1908, from which may be gleaned the fact that he invented the modern water closet which is described in a monograph entitled "A new Discourse of a Stale Subject called the metamorphosis of Ajax, London 1596.

It is conjectured that Harrington made his version in connection with his part in the education of Prince Henry. A considerable number of Harrington's verses are still extant and several of his epigrams are well known, for example his rendering of Martial's epigram:

The goodly haire that Galla weares
Is hers; who would have thought it?
She swears it is, and true she swears,
For I know where she bought it.

and also the following:

Treason doth never prosper; what's the reason?
Why; if it prosper, none dare call it Treason

* * * * *

Books give not wisdom where was no
But where some is, there reading ma

The following are some specimens
translation:

"They that in Physick will prescribe you food,
Six things must note we heere in order touch,
First *what it is*, and then *for what 'tis good*,
And *when* and *where*, *how often*, and *how much*:
Who note not this, it cannot be with-stood,
They hurt, not heale, yet are too many such."

* * * * * *

"To keepe good dyet, you should neuer feed
Vntill you finde your stomacke cleane and void
Of former eaten meate, for they do breed
Repletion, and will cause you soone be cloid,
None other rule but appetite should need,
When from your mouth a moysture cleare doth void.
All *Peares and Apples, Peaches, Milke and Cheese,
Salt meates, red Deere, Hare, Beefe and Goat:* all these
Are meates that breed ill bloud, and Melancholy,
If sicke you be, to feede on them were folly."

* * * * * *

"Chuse wine you meane shall serue you all the yeere,
Well-sauor'd tasting well, and coloured cleere.
Fiue qualities there are, wines praise aduancing,
Strong, Beautifull, and Fragrant, coole and dancing."

* * * * * *

"Some loue to drinke new wine not fully fin'd,
But for your health we wish that you drinke none,
For such to dangerous fluxes are inclin'd,
Besides, the Lees of wine does breed the stone,
Some to drinke onely water are assign'd,
But such by our consent shall drinke alone.
For water and small beere we make no question,
Are enemies to health and good digestion:
And *Horace* in a verse of his rehearses,
That *Water-drinkers* neuer make good verses."

* * * * * *

This last may be taken as evidence that Mr. Volstead would not have been popular in Salerno.

"But here the *Salerne Schoole* doth make an end:
And here I cease to write, but will not cease
To wish you liue in health, and die in peace:
And ye our Physicke rules that friendly read,
God grant that Physicke you may neuer need."

* * * * * *

The above may be compared with some of Ordronaux's verses. Comment is not necessary.

FOOD TO BE AVOIDED.

"The luscious peach, the apple and the pear,
Cheese, ven'son, salted meats and e'en the hare,
With flesh of goats, dyspeptic throes provoke,
And crush the weak 'neath melancholy's yoke.

(*Addition* from Paris Ed., 1861.)

"Salt is the flesh of ruffled ducks and geese;
Fried meats do harm; while boiled give peptic peace;
And fragrant roasts, digestive powers increase.
Bitters will purge—crude things in all cause wind,
And salted meats the body dry and bind,
While crusts give rise to bile of darkest kind.
Salt things consume virility and sight,
And psoric torments breed of direst might."

* * * * * *

OF THE QUALITIES OF GOOD WINE.

"The taste of wines, their clearness, odor, shade,
Are living proofs of their specific grade;
You'll find all those that are of highest source,
Fragrant, frigid, fair, fuming with high force."

* * * * * *

OF MUST.

"New wine at once doth diuretic prove,
And sluggish bowels tends to freely move;
The spleen and liver causes to congest;
And sometimes, too, incites a lithic pest."

OF DRINKING WATER.

"Who water drinks at meals hath mischief brewed;
[illegible]tomach chilled voids undigested food."

(Addition A. V.)

"[illegible]k wine, let beasts for fountains crave,
[illegible]king never men enslave."

* * * *

OF DIETING.

"Doctors should thus their patient's food revise—
What is it? *When* the meal? And what its *size?*
How *often? Where?* lest, by some sad mistake,
Ill-sorted things should meet and trouble make."

* * * * * *

VALEDICTORY.

"The Flower of Physic endeth here its strain;
The Author, happy o'er his garnered grain,
Prays that in Heaven there be prepared for him,
A seat near Christ, and His blest Seraphim.
Amen!"

* * * * * *

A Medical School at Teheran.—Porak describes a new medical school in the Persian capital which will be largely under the control of French instructors (*La Presse Médicale.*) He went to Persia at the instance of the Government of that country, only to learn that the supposed Persian Medical College existed on paper only. There is an excellent hospital which was created by the Germans and after the war passed into the hands of the English. This occupation seemed to extinguish the local college, for the English took over the treatment of all the sick. The old faculty, which comprised Persians and French, found their occupation gone. The author will endeavor to reorganize the medical college along the usual lines of colonial institutions. At present it would be unethical to give diplomas to students who have had no dissection and who have never examined a patient. For eight months he has been striving to organize a new hospital for clinical instruction. Persia is essentially a country of French culture and French is spoken next in frequency to Persian. There are three French colleges in the country. German instruction has passed out, and under English instruction the author only mentions that the American College attracts the children of the aristocracy. Negotiations just now are in a critical condition, but Porak believes that his dream of a first class Franco-Persian Medical College will come true.

French Kings Proclaiming Against Infanticide.—In February, 1556, King Henry II of France issued a manifesto to the childbearing women of his realm in which he claimed to have been informed of the existence of an enormous and execrable crime of frequent occurrence by women, who, having conceived, whether honestly or dishonestly, through bad intent or bad counsel, suppressed the fact of pregnancy and when delivered disposed murderously of the child without the formality of baptism. Burial of these children took place in unconsecrated soil. Women of this kind when brought before tribunals asserted that their infants were stillborn and it was often impossible to disprove this assertion. The Judges could not agree on the course of procedure. Women who had been accused of this offence seemed prone to repeat it. The proclamation of the King for the suppression of this offence dealt chiefly with the necessity henceforth for valid witnesses of stillbirth, while concealment of gravidity was made an offense. Neglect of baptism and public interment in the case of a deadborn infant was also made felony punishable with death. The proclamation was made by criers throughout the entire realm and also was read publicly in churches. —*La Presse Médicale.*

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Original Articles.

THE USE AND ABUSE OF LOCAL SUPPORT ALSO MOTOR REEDUCATION IN HUMAN READJUSTMENT OR ORTHOKINETICS.

BY J. MADISON TAYLOR, A.B., M.D.,

PHILADELPHIA, PA.

PROFESSOR OF PHYSICAL THERAPEUTICS AND DIETETICS, MEDICAL DEPARTMENT, TEMPLE UNIVERSITY.

THE resources of fixation rest are here presented as they arise in problems of internal medicine as well as in inflamed, injured, defective, relaxed, paretic, disabled or painful structures, direct or associated, along with remedial devices and methods which can be recommended. They serve as valuable agencies for supplying conditions and positions of advantageous purposive movement. The author, while not a surgeon, has devoted his attention constantly to the reestablishment of functional equilibrium through readjustments of structure.

The prime objective of one who would raise the coefficient of efficiency to the highest point in any individual is to reestablish poise, harmony in all common and uncommon energy manifestations. This includes readjustments of the static and skeletel muscles, the release of intraarticular pressures and of all structures capable of being brought under control of consciousness, both the cerebral and the cellular. In particular it is desirable to cultivate the conditioned, the reasoned, or trained reflexes, hence self-mastery of structures and cellular consciousness.

Behind all lies the background of body chemistry, a factor of direct significance here since movement, conscious purposive movements, and all the motor elements in functional integrity depend in chief measure upon balanced nutrition and the motor functioning of the digestive mechanisms.

Organic disharmony—no matter what be the original cause or causes incriminated—is the product of inadequacies in the muscles as accessories to, or essentials in, all functioning, coarse or fine. As a crude illustration, we may cite such disharmonies as are the outcome from imbalances in any or all motor structures, in the vasomotor, the ideomotor, and accessory motor mechanisms. In short, ideal reparative conditions are realizable in proportion as this motor, emotor, vasomotor, or ideomotor reflex poise is secured and maintained.

The principles of structural, organic, reflex, and cerebral adjustment rest on the same basis—the organism being a composite of physiogenic and psychogenic factors, in that nice or harmonious interdependency which connotes health. In this hierarchy the cellular, the structural, especially the muscular, factors are as important as the metabolic or grandular or cerebral or any other physiologic grouping or concatenation.

In short, until the static, skeletel, semivoluntary muscles and their accessories, the bones, joints, ligaments, white fibrous structures, and other mechanisms of adjustability—automatic or purposive—are in advantageous correlationship, the one to the other, then are the processes of life—as commonly visualized— not capable of stabilization or the maintenance of functional poise.

Localized rest through support or temporary fixation serves so many valuable purposes and in so wide a variety of disabilities sensory or motor, that the topic deserves consideration by all clinicians.

The surgeon has constant need of supplying local support, or immobilization; the internist equally so, though more rarely. He too should acquire the habit of thinking in terms of biophysics and of biokinetics, in order to deal adequately with many exigencies coming within his jurisdiction. Best results can in many instances, follow only through the use of such fixation instrumentalities.

These suggestions are offered especially to the general practitioner, in particular the man who operates upon the borderline between the surgeon and the internist. To understand, to diagnose, and to apply these instrumentalities with the best effect becomes so great a nicety as to approach a fine art.

The principles governing pathology and the economics of functional restoration are similar in like problems. The rôle of the reflex irritation or exhaustion, over-action, under-action on anomalous action, *e.g.* tonic spasm or motor inadequacy, are intimately concerned. So are problems of parts held in positions of disadvantage, which require restoration to positions of advantage, likewise involved. Structures in positions of advantage not only act better but, when impaired, recover better upon being placed and held in positions of best advantage. This is true of all structures, soft as well as static or rigid.

Pain on movement, active or passive, is in most instances the indicator, while in others it is a mere disability, which disability may become permanent unless structural competence is skilfully and promptly conserved. Here also is the psychogenic factor of voluntariness or inadequacy to be adjusted.

Associated structures oftentimes are able to act, or be made to act, as support or reinforcement. They may do so, however, to the disadvantage of

the impaired structure. Hence it is frequently necessary to put the supplemental structures temporarily out of commission in order adequately to restore the tone of those impaired. This is an especially important precaution to be taken in the pareses, such as in poliomyelitis. The more powerful antagonist becomes thus a menace. Its excessive action must be restricted by some device or the less capable muscle is over-worked and suffers aggravated impairment.

Health is well visualized as a nice state of poise between all the energies arising from within or without, of the readjustments from unfavorable to favorable, whereby a relative balance or harmonious interaction is maintained.

The tone of muscles varies widely, not only in different muscles at the same time, but under differing times and circumstances. Among the causes for this variation are : defective original development, differing states of energy, of action patterns, of control, of degrees of acquired causation through disuse, disease, injury, or through inadequate care during convalescence. Reflex arcs (or circuits) vary widely in their capabilities for sustained functioning, they become wearied, stressed or exhausted, and then demand full rest.

The term support is here used in the sense of an upholding, or reinforcing, or sustaining of the load to be carried—the work to be done—in accord with function and design. Also in the broader sense of restoring to positions of advantage those structures whose duties are to carry a maximum load and then a little more ("the factors of safety") and thereby subserve collateral as well as direct functions.

A natural support is whatever associated parts are qualified by design to sustain or to contribute to the tensile or static power of the framework—bony, ligamentous, tendinous, fibromuscular, muscular, parenchymatous or dermal, also the maintenance of intraorganic, or intraarticular pressures. Here we have the several and the total (sum of) factors which make for *position*, interrelationship, posture, whereby function or proficiency is best subserved. The objective is always to restore normality in the tone of affected structures. *Attitude* is the adjustment assumed naturally (purposively or instinctively) in accord with design, that which is assumed by conscious or subconscious choice.

An artificial support is a device adapted or applied to meet the particular needs of a part which, for one reason or another, is no longer able to carry or handle its customary load. The causes and conditions making such aid necessary may be (as mentioned) a primary defect (developmental), or a secondary defect, stress or disorder, disease, inflammation, paresis, injury, fracture, strain, sprain, or functional or nutritional or psychogenic disorder, or faulty habits leading to the assumption of disadvantageous positions (or attitudes) of a part or associated parts. Note the element of reflex arc (circuit) exhaustibility also.

Collateral or secondary causes (*e.g.* overstress) must likewise be reckoned with; among these are shock, fright, exposure, fatigue, causing disorder or disrepair of one part, throwing stress, fatigue, or strain upon associated parts, whereby conscious control is inhibited, bewildered, causing transferred pains, tonic spasm and the like. Also the whole organism, the sum total of essential energies may have become lowered beyond the edge of the factors of safety, hence occurs collapse.

Support, or immobilization, is oftentimes required during acute disease, especially in irritable, tender, painful, inflammatory, or spasmodic conditions, such as rheumatic fever, pleuritis, poliomyolitis, neuritis, in diseased states of the circulation, or respiration, of digestion, of the abdominal organs, of genito-urination, or reproduction, and the like. Also anomalous conditions arising during acute exacerbations of protracted diseases, especially in joints (arthritis, periarthritis, excess intraarticular pressure), likewise of muscles and fibrous structures, fibromyositis, gouty states; also in old foot troubles, such as weak arches, metatarsalgia, and in many other disablements.

Support or fixation is particularly helpful in many protracted disorders, and is frequently demanded during the progress of various chronicities. In many instances support affords the only instrumentality capable of encouraging depressed function; thus it contributes both directly and indirectly to harmonies and completenesses of functioning (*e.g.* in cerebral or in splanchnic circulation). Also in the extensive group of disorders due to impairment of vascular tone or vasomotor integrity (blood ptosis of C. Ward Crampton). Note the variants in maximum systolic pressure in the lying, sitting, and standing attitudes.

The dominant groups of organic activities can only be expected to perform thoroughly or economically when those structures which supply support are, and remain, in tone. The tone or power of tonal sustension must be adequate in order that the part shall fulfill function.

The care and after care of a large proportion of disorders, and the deteriorating effects of disease, can be carried to legitimate conclusions only by restoring tone in the correlated structures.

The best support, and the one on which ultimate reliance can be placed, is soundness in the natural or anatomic supports. These may be defective in original development or become defective through loss of tone, mere relaxation or partial paralysis, and the like adynamias. Warning: the utmost vigilance must be observed to avoid using immobilization for one moment after the full requirements are supplied. Otherwise the term "the curse of immobilization" becomes fully justified. Hence the need of bearing in mind the required degrees of immobilization, compensatory fixation, and temporary support.

Pathological Local Fixation due to adhesions, pareses, effects of disease or injury producing limitations, or restrictions of normal action.—Structural anomalies such as these are promising subjects for treatment by the simpler biokinetic or reconstructive measures like manipulation, corrective or mobilizing (passive) movements, and muscle reeducation to release abnormal fixation.

The conditions to be considered here are those abnormalities due to effects of disorder in structure which cause *mechanical interferences* with the

function of a part or of associated structures. These are often *accompanied by anomalies of sensation* which become relieved through movement in some of its forms or modalities—active, assisted, or passive (biokinetic remediation) also regulation of nutrition, hence is functional competence thus immensely enhanced.

While the more pronounced impairments of motor functioning are caused by severe injuries involving destructive effects on bones, joints, ligaments, fasciæ, muscle masses, skin and subdermal structures, and properly belong to the domain of surgery, there also occur many lesser ones coming within the common experience of the general practitioner.

The usual course of procedure in such exigencies is for the practical treatment to be carried out less often by the physician, who entrusts the details to lay persons, nurses, orderlies, special aides, or, when available, experts in the art of muscle reeducation. The results, when clinical authority is delegated to one not trained in medical science, far too often prove not what they should have been, and yet could have been had the surgeon or physician possessed familiarity with the main principles of the art of manipulation and muscle reeducation.

While eager to testify to the splendid work demonstrated by military surgeons in the late war, it is a fact that unfortunately few of these, here or abroad, but fewer here than in Europe, possessed either the needful knowledge or training, or even displayed interest in the resources of artistic manipulation of adhesions. Abundant occasions constantly arise here in the United States and in civil life for utilizing skill in this domain.

The present remarks are made by one who has himself always taken practical interest in muscle reeducation, in manutherapy, and who speaks from long personal experience. It has been admitted to me repeatedly by the best surgeons and those of the largest experience, that such recommendations as are now to be made should be uniformly adopted. These are to the effect that *the fate of a crippled limb or part often rests more upon the after-care*, the treatment during convalescence, and especially the skillfulness of the manipulation applied, *than upon the surgical procedures.*

Also it is conceded, and I would emphasize the point, that the imperative duty of the physician or surgeon in charge of an injured motor mechanism is to know enough of the possibilities of the case, and also of the resources of manipulation, to act at least as expert guide from start to finish of the treatment.

The manipulation of adhesions has much in common with that of other conditions of abnormal rigidity. These have been set forth in detail elsewhere under the captions, massage, manutherapy, and manipulation, and also corrective, remedial, or passive movements made upon the patient. The particular points to be borne in mind in connection with manipulations of adhesions is that *these occur much more frequently than might be suspected after slight injuries, often after diseased states, and after prolonged disuse* in almost any part of the body.

Special attention is being directed to adhesions of the abdominal and pelvic viscera. These may give no trouble, may cause serious interference with function, or may cause merely distress or vague miseries. While inflammatory conditions persist it is probable that more harm than good may be caused by manipulation. Experience is needed here, since such splendid results follow in voluntary (active) and passive (subjectively received) movements made on wound states.

When healing is slow after injuries of the limbs, and where adhesions are forming, it is of the utmost value to free these adhesions cautiously as soon as possible. By gentle lifting and pulling on the adjacent structures even while in the acute stage, it is possible so to stimulate circulation and lymph propulsion as well as nerve associations, as to expedite recovery. The best judgment is required. In my experience, however, it is most important to manipulate early and systematically. Especially is this needed where there is sluggish circulation, purulent secretion, and where extensive destruction has been caused upon bones, periosteum, ligaments, and tendons, as in neglected compound fractures or joint disease where immobilization has been protracted. Of course some pain may be given (at first, though it rapidly subsides). It is a nice diagnostic point, however, to determine from the nature of this pain and also from the tone of the tissues, how much interference to make. No harm can follow if gentleness be used. A practical point of value is to apply a broad strip of zinc oxide plaster to the parts to be lifted and pulled. This enables the fingers to grasp the skin which otherwise may slip and elude.

Some preparatory measures are often needed, as, for example, the whirling bath, or contrast bath, alternations of heat and cold.

Along the backbone, the paravertebral structures, dermal adhesions especially need release to be freed from attachments to the spinal eminences. As these "fetch away" a snap is heard accompanied by sudden pain, after which the spinal reflexes become more amenable to relief. In treating backs, whether recognizably disordered or only suspected, it is well to remember the numerous articulations, arthroses, amphiarthroses, etc., of the vertebral column. There are two distinct sets of articulations: (a) those between the bodies, the vertebral discs which form amphiarthroidal joints, and (b) those between the articular processes and arthrodial joints; also the joints of the ribs, the costotransverse articulations. These last are formed by the tubercle of the rib articulating with the anterior part of the tip of the transverse process.

Of great clinical significance and frequency are adhesions of the scalp, especially the attachments of the posterior occipital ridge and down to the base of the neck. These adhesions are connected in some intimate way with nerves, hence the causation or continuance of headache. These distresses may cease to be recognized as pain yet interfere with sleep or even digestion and circulation. Mobilizations of these areas produce most gratifying effects on sensory disturbances and on sensorifunction, *e.g.* eye, ear, nose, throat, etc.

The Resources of Hand Treatment.—Manutherapy should include the use of the hand in any and

every way promising helpfulness in relief from pain, discomfort, disability, deformation, or modifying over- and under-action or diverted or vitiated action.

Among the plus states of muscles are overtension, cramp, tonic muscle spasm, contracture, tremor, adhesion, rigidity. Among the minus states of muscles are under-tension, relaxation, impaired local tone or support, flaccidity, decrepitude, asthenia or adynamia, and the paretic effects of shock or trauma.

Among the effects of irregular combinations of over and undertension in body states are disorders in reflex arcs or circuits, structural disabilities, deformations, maladjustments, loss or impairments in power, in poise, in balance, or in equilibrium, and in diverse associated or resulting anomalies, indeed whatsoever evidences appear of a vitalized mechanism out of gear. Psychogenic anomalies must never be overlooked.

Among the systems or structures which come most readily or directly under attention, and may need controlling effects through that simple and always available agency, the hand, are:

The skin often becomes unduly adherent to the underlying structures, whereupon the subdermal spaces become relatively obliterated, and demand restoration of the advantageous conditions, the comfortable opportunities for action and reaction and interaction of blood vessels, lymph channels, and peripheral nerves.

The muscles, fasciæ, fibrous structures, aponeuroses, along with tendons and their sheaths, ligaments, and the like, which are readily disturbed, some more than others. Impairments in integrity of one structure bear such intimate relationships to those of others that not only does there ensue morphogenic change, cellular irritability or indolence, but also unique sensory alterations which deserve particularized attention, especially in order to achieve a sense of proportion in the motor and sensorimotor variants.

Here we have a group of influences exerted upon muscle tension, over- or under-tension, the release of over-tension (in hypertonus) as in cramp or tonic muscle spasm, and the reflexopathies thus indicated; also the reverse, hypotension (hypotonus), relaxation, loss of tone, paresis, also contracture, tremor, fibrillation.

To the interpretation of these neuromuscular anomalies and release from their effects, the hand is capable of making by far the largest contribution of any known agent. Perhaps in no other diagnostic and curative enterprise is a matured sense of proportion more needed or capable of offering help than here. One must have a keen kinesthesis or muscle sense, also a comprehensive motor intelligence which includes many niceties in neuromuscular make-up, to deal satisfactorily with problems of disordered motor mechanisms.

The blood vessels and lymph channels (including the heart) are peculiarly sensitive to mechanical or environmental influences, impacts, stimulation, irritation, or sedation and such effects as the hand is capable of producing are peculiarly controllable, distributable, applicable, adaptable.

Not only the vasomotor activities but fluctuations in the surface heat-generating mechanisms are thus influenced, and to such a degree as far transcends the use of most thermal agencies, so readily available and applicable. The thermogenic effects are readily activated by subdermal traction, by lifting, pulling, and separating of the dermal from the subdermal structures which not only frees the obstructed channels but induces remedial hyperemia. This stimulation of dermal reflexes, of surface heat-mechanisms acts as the full equivalent in many instances of artificial warmth or counterirritation. Should this prove inadequate, external heat can be applied by external thermogenesis, direct or through electric devices.

By artistic handling, alternating or continued (and distributed), pressure, can effects be brought to bear on vasomotor reactions on the superficial areas, but vastly more so when those areas are treated which are closely associated with spinal centers, *e.g.* the erector spinæ muscles innervated as they are by the posterior primary divisions of the spinal nerves (rami communicantes) and other "nerve points." Thus are states of vasomotor tension or relaxation or imbalance capable of being influenced or controlled plus or minus (hypertonus or hypotonus).* Hence the ebb and flow of nutrient fluids can be expedited or retarded, making for blood and lymph supply to, or release of congestion in, areas wherein such effects are desirable, *e.g.* in local anemias, hemic inadequacies or excesses, as of inflammations and suppurations, active (urgent) or sluggish (indolent or torpid). Important effects are thus exerted upon nerves in continuity, nerve centers, spinal or sympathetic (primary or subsidiary), and the interrelated or automatic. The transference of nerve impressions when in excess (pain) can be retarded, or when deficient can be expedited.

The hand is by far the most convenient, and in many respects the most safe and available means of influencing action or reaction in certain nerves or nerve centers, in particular to exalt or to depress the nervous currents in structures where these have suffered agitation, perturbation, excess passage of impulses, or upon sluggish or indolent or depressed neurones or filaments.

In particular concussion can by the hand alone (or reinforced by some such simple instrument as a bit of soft rubber and a mallet) induce far-reaching effects on the passage of spinal nerve impulses or other control through nerves in continuity and also far more dominantly upon spinal centers.

Also electrotonic influences, as Abrams teaches, are capable of being exerted or determined or controlled by the hand. The realm of diagnosis through tactile awareness, direct or contributory, has been elaborated by certain pioneer experts, the bearings and practicability of which are only now coming to be appreciated.

Many clinicians still assume that the function of manipulation is chiefly confined to producing the cruder effects of "massage," *i.e.* the squeezing, pulling, twisting, and rotating the muscle masses. The fact is manipulative remediation or adjustment or orthopedic orthokinetics), has reached a

*See article by author on "Cardiovascular Regulation" in the *Boston Medical and Surgical Journal*, October 9, 1919.

high degree of practical and scientific elaboration. These resources must now come in for the same careful, critical and experimental but open-minded attention so fully accorded to the action of drugs.

Points in Determining the Latent Power in Parts Where Movement Is Impaired, whether acute or chronic, shocked, injured, diseased, paretic or arthropathic.—To estimate the latent potentialities of an impaired limb or muscle group is not only an imperative clinical need, it is a reputable art, and also an economic enterprise. Unless the facts are determined or intelligently inferred, there will ensue blunders, delays, and loss of completeness in restoration. Also, unless the conditions, positions, etc., under which examinations are made shall be advantageous, no reliable judgment can be pronounced.

In many cripples the most serious effects and degrees of disability are attributable to discouragement or inadequate encouragement, where the primary conditions were unrecognized or neglected. Conditions in which the disabilities were apparently complete but were merely temporary, often become irremediable through neglect or wrong interpretation. Thus unless a curable malady is recognized and treated in time, the victim may become doomed to a life of local uselessness. This fate is cruel and indefensible. The information is often presented incidentally and in such technical shape as to render it difficult of access for the ordinary practitioner. A few outstanding points may serve as memoranda to aid recollection.

Among the *origins of motor disability* we may enumerate:

Acute States.—Shock, local and general; surgical shock is compounded of (*a*) psychogenic factors, commotio cerebri, fear, suspense, anxiety, phychopathy, maladjustment to terrifying situations; (*b*) somatogenic effects as of fatigue, of extremes of exertion or inaction, of exposure to cold, to heat, to dryness or wetness, of loss of sleep, of inadequate food or drink, loss of blood, pain, etc., wounds, fractures, contusions, etc.; (*c*) acute impairments in the poise of the reflex circuits and other defense reactions.

Subacute Causes of Motor Disability.—Protracted immobilization, excessive and repeated local assaults on vitality, disturbances of blood supply, local or general, in amount or in distribution, compression upon sensitive areas or structures, on blood vessels, nerves, joints, etc.

Chronic Causes of Motor Disability.—Central disorders or impairment, cerebral or spinal, the lesions may be single or multiple, along with cerebral hemorrhage, thrombosis. embolus, effusion, etc. The defense reactions, the factors of safety, may become so seriously impaired as to inhibit that measure of recuperation reasonably to be expected from estimates based on the nature and character of the causal agency in one at a fair norm of recoverability; especially remember disuse.

Adhesions between Structures designed to move freely the one over the other, e.g., aponeurotic, tendinous, ligamentous, dermal, subdermal, superficial, or deep. Contractures, asymmetries due to loss or increase of tone in a muscle group, lesions, arthritic or periarthritic, disorders of intraarticular pressure, compressions upon nerves or tubular or vital structures; the compressive effects of edemia in injuries of the cord, of suppuration, hence loss of structure, and of nutrition in associated structures; effects inducing impairments of normal nutrition or of catabolism, whether primary (as in arthritis deformans) or secondary, from long disuse and hence cell deterioration and, as a secondary cause or effect, structural anomalies in the noble organ concerned in metabolism or elaboration. A vast number of evidences of beginning arthritis deformans are found in middle-aged individuals, not at all suspected, but shown in post-mortem.

Certain other features may also occur, more or less characteristic, secondary effects which persist or fluctuate, *e.g.*, overtone (hypertonus), tonic spasm, rigidity, brawniness, tremor, or undertone (hypotonus), relaxation, and flaccidity. Metabolic disorders producing variegated causes or motor phenomena have been mentioned; these run a large gamut from goutiness to arthritis deformans. Late effects of the infections, syphilis, focal infections from teeth, tonsils, tuberculous or other bacteriogenic foci, pus pockets anywhere, exostoses, osteophytes, necroses, and probably most prolific causes of all: fecal absorption.

Among what may be called *fluctuations in features or stages or conditions common to each and every motor disability* are: variations in age, in reflex sensitiveness, responsiveness, make-up, weight, height, temperament, energy content, etc., in disposition, hopefulness, gloominess, or discouragability, resolution, fortitude, or persistency.

A most significant factor is the *degree of motor intelligence,* capability for exerting control over motor force, in velocity, in direction, in precision, and in combinations of movements (coordination), also in the degree of poise or tenderness present, in nicety of balance, of harmony, in putting the power on or off, in increasing or diminishing power transmission, carrying energy output (movement) to the finish, assuming the zero position and, graduating movement to the maximum, in describing the parabola of increments or decrements.

Also there are the contrast (motor) values, fluctuations in neuromuscular development, asymmetries in power. This can be most readily noted by comparisons with the corresponding structures on the other side. Also the length of time elapsed since the manifestations of causes.

In short, the coefficient of motor resourcefulness, of self-adaptation, of ingenuity, of eliciting the collateral or associated structures, the capabilities of graduated cooperation, the welcoming or the shirking of the day's lesson and of the total training episode.

Nerve Stretching, Joint Stretching, or Traction, to be first done by another, later voluntarily, and finally use a combination of both. To avoid performing compensatory movements during corrective and educational training is most important as making for better purposive control. Many means are available, well worth employing, of guarding against involuntary acts or local spasms which nullify the particular movements desired.

Stretching of nerves was at one time regarded

as a valuable remedial measure in overcoming the effects of chronic deterioration in nerves, especially, and associated structures, in disabling or uncomfortable or distressing conditions. Violent or forceful stretching of nerves is now seldom done, but undoubted benefit often follows gradual traction. It is entirely possible to secure similar or even better effects by passive movements and mobilizations, capable of putting disordered nerves on the stretch.

Of special importance is it to exert traction on the structures of the vertebral column in order to free restricted joints, arthroses, and amphiarthroses, thus removing pressure from the lateral processes, nerve outlets, grey rami, removing any existing stiffness or compression. Post-mortem findings often show effusions of material in bony openings which are thus obstructed.

The overaction of function in one muscle often serves as an excuse to protect another disordered muscle from action. That is, one movement induces an opposite or compensatory motion or tension in another muscle group whereby this last is protected from being stretched, *e.g.*, in bending the body the head comes up on the opposite side, the backbone curves, like an S, in compensation; hence, the long fibers are not fully stretched in the direction of motion.

The value of full control of an isolated muscle is to secure release of oventension, spasm, which later becomes contracture.*

(*To be continued.*)

THE NURSING PROBLEM.†

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WE have become so accustomed to obligatory education in our public schools that we accept the plan as a matter of course. The cost of public schools is assessed not only on the parents of the children who attend but also on other citizens, even including old bachelors and old maids. Such assessment must be reasonable or it would not continue. The object of obligatory education is to produce better citizens, and consequently to make our country safer and more comfortable to live in. This advantage is shared by all people, whether or not they have children, and consequently it is fair that all should be taxed. Similarly, the children who attend the schools, having been prepared for the battle of life through the activity of the government, are in a corresponding degree in debt to the government. This debt can be paid only through good citizenship, that is through sustained and self-sacrificing effort for the welfare of all. No one can escape such civic obligation.

A young man pays his tuition at a medical college and, after several years work, becomes a doctor of medicine. But the college meanwhile has acquired a deficit, for the tuition fees are not sufficient to maintain medical schools. Deficits are met through gifts from public spirited citizens. Such use of money is wise for it insures more and better doctors than would otherwise be the case, thus safeguarding all people including those who make the gifts. Every medical student graduates in debt to the community, even though he has paid his tuition. His debt can be paid, and is expected to be paid, through making his skilled services available to everyone and at all times. When a doctor is needed it is manifestly his duty either to go or send. The only satisfactory excuse is physical inability. I am happy to say that, as a rule, doctors perform this civic duty.

A young woman enters a nurses' training school. She pays no tuition; on the contrary she receives board, lodging and a small salary. However, she contributes her labor in greater degree than is needed for her education and so, for all practical purposes, she pays tuition. That she does not pay the cost of her education may be inferred from the fact that hospitals, like medical colleges, have regular annual deficits which are made up by the generous well-to-do. Consequently all nurses graduate in debt to the community. They rest under the moral obligation to nurse the sick to the extent of their ability. Were it not so, general public support of nurses' training schools would be unjustifiable. There is a public demand for nursing as well as medical care of the sick, and public support of hospitals grows out of it. If hospitals, doctors, and nurses should fail to give the public reasonable care in sickness, then public support of them would eventually be withdrawn. The public demands service and is certain to get it. That person who enters medicine or nursing for the sole purpose of making money has adopted the wrong course and is not honest in accepting the education offered.

We all feel that the best possible nursing care is desirable, and we feel it the more keenly when we ourselves or those near to us are the patients. At present a fully trained nurse receives $5 or more per day and board. Under the 12-hour duty system it often happens that one nurse is of comparatively little value, and we choose between two nurses or none. If the patient is in a hospital, the hospital bill must be added and, usually, the doctor's bill as well. It is generally known that doctors' bills vary according to the standing of the doctor and the ability of the patient to pay. Hospital bills vary according to the rooms chosen. Nurses' fees however are fixed. There is much to be said in favor of uniformity of nurses' fees and it has the backing of established custom. For the purposes of this discussion, at least, uniformity of nurses' fees may be accepted as proper.

It will be seen that sickness, if properly cared for, is expensive, yet within the easy reach of the well-to-do. Through our public charities good care is also within the easy reach of the very poor. For the great bulk of the people, who are self-supporting and who resent charity, the proper care of sickness is a heavy burden. Yet this middle class comprises about 90 per cent of the people, it is the bulwark of the nation, the great men of to-day have come from it, and its children will furnish the great men of to-morrow. It must not be pauperized nor humiliated. Five dollars per day is an ordinary wage for a head of a family. The man who nets

*See "Treatment of Sciatica," giving experiences on the author's own person, by A. C. Wittenrod, in Ned. Tidjdschrift v. Geneeskunde, March 12, 1921. Abstract *J. A. M. A.*, June 11, 1921, p. 1720.

†Presidential address delivered before the Fifth District Branch of the Medical Society of the State of New York.

$10 per day is doing very well indeed. To ask such a man to spend five or ten dollars per day and board for one or two nurses, in addition to the other expenses of sickness, is to ask something which is clearly out of proportion to his income. This does not mean necessarily that graduate nurses charge more than they are worth, but it does mean that under the present system trained nurses are not available for the mass of the community.

There are other minor phases of the nursing problem which may properly be mentioned. At present there are not enough nurses to supply the need, even if twelve hour duty was abandoned. Twelve hour duty has laid a heavy burden on the community without lightening the burden of the nurses in proportion. Practically every mother does twenty-four hour duty. As a routine procedure twelve-hour duty for nurses is wrong. It should be reserved for the more burdensome cases only. The custom of employing trained nurses for wealthy semi-invalids is unfair if these nurses are needed by sick people. In a large percentage of cases proper treatment depends quite as much on a trained housekeeper as on a trained nurse. Commonly graduate nurses do no housework and consequently they miss many opportunities for relieving the sick. The mental state of both patient and family is an important and much neglected factor in the treatment of disease. The sick housewife is disturbed and restless when she knows the house is running badly, and she is all the more distressed when she realizes that the household cares have become heavier through the presence of a guest—the nurse. If the patient is husband or child, the housewife's cares and duties are greatly increased and help of any sort is thoroughly appreciated. It is difficult to explain the ethics of a situation which overburdens the mother with housework and permits the nurse to sit in a comfortable chair doing fancy work. Although I personally know that such situations have occurred, yet I also know they are rare. I can say, with much pleasure, that I have often known graduate nurses to make themselves useful in all possible ways, after the patient had been cared for. Nurses who began training in their teens and who have done nothing but nursing since, naturally cannot be expert housekeepers and we must not expect too much of them.

A recent development which makes the solution of the nursing problem more difficult is the choosing of cases by nurses. It is proper for some nurses to limit their work to special fields in order to increase their efficiency, for example operative cases, obstetrics, quarantinable diseases, etc.; but the majority of nurses should hold themselves in readiness to accept calls as they come. It is their civic duty—should they fail in it, the nursing profession must descend from the high place it has occupied. Every doctor and many families have known of nurses refusing calls because the case was out of town, because the diagnosis was unsatisfactory, because the disease was mildly contagious although not quarantinable, because there were no servants in the house, because the doctor or the family were not agreeable, because the case was difficult, because it was not in a hospital, because only one nurse could be afforded, or because it was holiday time. These excuses are mentioned with chagrin and shame. However, the spirit of human kindness is so strong in all people that, in my opinion, these abuses will be corrected as soon as nurses understand that public opinion condemns them.

Many of the phases of the nursing problem do not, in my opinion, call for criticism of the nurses themselves. They rather are part of the trend of the times and have involved nurses no more than other groups of workers. Rome fell after her people were surfeited with power and wealth. The United States has grown so strong and rich that we are seeking ease and pleasure, forgetting our sturdy ancestors who vivified the doctrine that the greatest health, wealth and happiness comes through work and that all work is honorable. The most conspicuous exponents of the new order are the labor unions who use force to the limit to raise wages and shorten hours of work. Their doctrines of the closed shop and restriction of the numbers of apprentices are pernicious and unfair, and must be overcome or we all, including the unions, will suffer. However much we may evade it temporarily, yet in the end the law of supply and demand controls. At present there is a demand for more extensive and less expensive nursing among middle class people and undoubtedly this demand will somehow be supplied.

The question naturally arises "who should solve this problem?" It really is everybody's problem, but everybody's problem is nobody's problem. Practically all public health problems have been solved by doctors, they being the ones best trained for the work. They are proper judges of efficiency of nursing in cases under their care, and they may well qualify as advisers in the nursing problem. Perhaps nurses themselves should take the lead in this matter for they already know more about it than do any other group of people. It is another phase of their civic duty. There is now a strong tendency to regulate the practice of nursing by law. The more the law restricts the freedom of people in general to qualify as nurses, the greater the obligation on those who do qualify to see that the community is well nursed.

There are at least three possible plans for improvement. First, the salaries of graduate nurses might be lowered. This is not to be advised for it would probably be unfair to the nurses, it would no doubt diminish the number of nurses in training, and it might eventually diminish the number or quality of those highly trained women needed for hospital superintendents and teachers.

Second, the field for graduate nurses might be limited to institutional and other salaried positions and to care of the well-to-do, thus leaving a large field for women who are less highly trained nurses but better housekeepers and who can afford to work for less money. Various attempts have been made to train such nurses, but, as yet, no plan has met with universal favor. New York State and California now license so-called "Registered Nurses" and "Trained Attendants." They continue to permit the care of the sick by other people regardless of their training and experience, that is by those who are known as "experienced" or "practical" nurses. "Registered Nurses" are those who have completed courses in training schools approved by the State and have conformed to the few rules required for license. Practically they comprise those

who were formerly known as "graduate" or "trained" nurses. "Trained Attendants" must have completed a short course (6-12 months) in a hospital approved by the State and conformed to the rules required for license. It is expected that hospitals of small capacity, hospitals for chronic cases, for the insane, for the tuberculous, etc., and possibly the larger general hospitals, will establish approved courses. These new laws have been in effect too short a time to know how great will be the supply of "Trained Attendants," but as yet hospitals have shown little interest in this type of nurse. Being deprived by law of the designation "nurse," "Trained Attendants" will probably be somewhat handicapped in prestige. In the English language from time immemorial the word "nurse" has meant any one who cared for the sick and probably its meaning cannot be changed by law. If custom continues to give the meaning to words, then "Trained Attendants" will be known popularly as nurses, or few people will become "Trained Attendants." In any event it is highly desirable to develop a large group of nurses who have had short hospital experience. The practical problem is how to get many people to aspire to be "Trained Attendants" and how to get hospitals to train them. Whether the advantages of a legal classification of nurses are greater than the burden and expense of registration is yet to be determined. Undoubtedly we always will have with us the non-descript group known as "practical" nurses and many such nurses continue to be of inestimable value. Their housewifely skill and their willingness to do whatever may be needed to overcome disease are assets which loom large.

Some attempts have been made to train nurses by instruction outside of hospitals. The National Training School for Certified Nurses at Albany offers a six months' course and the Chautauqua School of Nursing gives a course by mail. Following the influenza epidemic the Chicago Training School for Home and Public Health Nursing was organized. It gives a two months' course consisting of lectures and demonstrations. In two years it has graduated 4,000 women, averaging over 40 years of age, half of them married or widowed and most of them experienced housekeepers. However great the defects of such schools may be, their graduates are better qualified for nursing than was the case before they carried on their studies. It is beyond question that a capable woman can become a good nurse after a few months' training, for many such women have demonstrated in actual practice that they *are* efficient. Charging usually twenty or twenty-five dollars a week and accepting twenty-four hour duty, they are available to many families who find it difficult to maintain trained nurses. Graduates of these schools who do not practice nursing are so useful in their own homes that nurses from the outside are seldom needed. Evidenty the community is helped by these schools and, until better sources for moderate priced nurses are operating, such schools should be continued. Graduate nurses need not fear competition for there is plenty of work for all.

It has been suggested that the need of most homes for nurses can be diminished by giving courses in nursing in the public schools, just as cooking and sewing are taught. There is much to be said in favor of this plan. Surely it is just as reasonable to teach school girls the care of the sick as to teach them the other house-wifely arts. Semi-public institutions, such as the Red Cross, have given courses in practical nursing. Considerable benefit and no harm has resulted.

An attempt is being made to increase the number of pupil nurses in training schools through shortening the course to two years or thereabouts. Probably this can be done without lowering the efficiency of the graduates, but the cost of their education will grow. Increasing the numbers of graduate nurses will help to solve the nursing problem, but unless they work for lower wages the mass of the people will not be benefited. Lowering the pay or shortening the training of graduate nurses would be inadvisable if loss in quality should result, for difficult cases will continue to demand all possible skill and the maximum of training and native ability is needed for superintendents and teachers.

A third possible plan for relief is the use of paid, fully trained, visiting nurses. During a daily visit a nurse can give special treatments, bathe and otherwise care for the patient, take pulse and temperature, and advise regarding diet, ventilation, care of excreta and general hygienic questions. Much valuable public health information can be diffused through neighborhoods by such nurses. Their visits are especially valuable to families who cannot afford resident nurses or who live in apartments so small that another person cannot be housed. In order that the work can be done for moderate prices, the patients must live near together. That is to say visiting nurses are practicable in densely populated communities only. They can never supply the need if distances are great or if continuous care is needed.

All these plans for relief are imperfect, all have their advantages. They give abundant material for discussion. The nursing problem is vital just now and demands careful consideration by all people, but particularly by nurses and doctors. In studying it one must remember that the fundamental motive in nursing is to relieve suffering—this includes not only the actual care of the patient, but also the relief of the anxious and overburdened family. A true nurse must have some of the spirit of a crusader or a missionary. She must conduct herself so that other people will want to work with her; so the family will be glad she came and sorry she went away. Kindness of heart, secretiveness, good breeding and general education are important. We all need to remember that the greatest pleasure and comfort in life come not through money, but through work well done. It happens that the nurses' opportunity for service is notably great.

The question naturally arises what can we, as doctors, do to help solve the nursing problem, and the answer is not easy. Public sentiment has not crystallized around any of the proposed plans for relief. Our civic obligations lead us to investigate the nursing situation just as surely as they lead us to study other public health questions. Our moral responsibility is fixed and unavoidable. We are just as much responsible to the public for the nursing care we accept as we are for the quality of the

drugs we administer or for the sterility of our hands when operating. The question is not "ought we to do something," but "what can we do?" As with other unanswered public questions one thing of value which every one can do is to talk, and everlastingly to talk. Out of the meeting of many minds, which is the sure result of general public interest, will come the answer to this question. You and I can help bring out the best ideas through conversations with our acquaintances, particularly with nurses, and through discussions at formal meetings. Only little readjustment will be required to develop nurses according to any of the proposed plans. The problem resolves itself into agreeing on the best method of supplying moderate-priced nursing.

When it becomes generally known that the way is open for the training of reasonably satisfactory nurses in short, inexpensive courses, there will then be no difficulty about candidates for the returns in self respect and money will be attractive.

Hospitals hold their pupil nurses for several years in order to train them in various technical details and in order to take advantage of their services. Just as special preparation is required for public health nursing, so it is needed for private family nursing. Hospital training makes a nurse competent to establish an operating room in a house, but does not prepare her to care for ordinary sickness without upsetting a home. Fifty years ago girls were taught housekeeping in their own homes and nurses were competent housekeepers first. Such is not the case now. Florence Nightingale lifted the nursing profession to the highest moral plane. Relief of suffering was her sole object. When she went to the military hospital at Scutari her first and most useful work was in making the hospital wards clean and free from vermin, the patients' bodies and their beds clean, and in serving good food. This work, done in considerable part by her own hands and in spite of the opposition of the military authorities, greatly increased the percentage of men returned to duty. It was tremendously valuable nursing, but it was housekeeping.

Let us do what we can to develop a class of nurses who know a little of the science and much of the art of nursing, who are ready to do whatever may be needed to make the sick well, who think less about the infectiousness of disease and more about the contagiousness of the Golden Rule, who are like mothers or sisters to their patients, who are true disciples of Florence Nightingale.

TUBERCULOSIS A DISEASE OF MALNUTRITION.

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It may as well be acknowledged, without further delay in a matter so important, that the disease known as tuberculosis, including the pulmonary form of it, is due in the final analysis to the failure of nutrition. In other words, consumption is the result of starvation, the evidence of a starved condition. Those who are unfortunate enough to be born into the world with deficient assimilative powers must naturally become the subjects of malnutrition in one form or another. Granted that no two persons are precisely alike in this particular, sooner or later the individual inability to get the good of one's food, day after day, will result in a breaking down of health. This breaking down may be sudden or gradual, according to circumstances. Disease of the lungs should direct attention at once to some congenital weakness of the alimentary canal, since the lungs are, after all, simply an appendix or annex to the digestive organs of the human body. Inefficiency of the digestive function produces an impoverishment of the blood and tissues, varying in degree with existing conditions, and the lungs, being overworked and under-nourished, become susceptible to the toxins of tuberculosis. Other localization of the disease will readily suggest a similar etiology.

No one questions the importance of contributory causes, such for example as the depreciation of vitality through illness of some serious sort, or as the result of physical shock or mental strain, or of an acute emotional disturbance. External and internal injury have their legitimate share in the development of disease. Sorrow after bereavement, loneliness in separation, injudicious habits of life, all come in for a share in the ultimate responsibility for the depressed and depleted condition. Other elements may easily be added to this brief list. But in the long run it is the weakened state of the physique in general, due primarily to an inability to replace the results of the ordinary wear and tear of daily activity, on which the burden of responsibility is to be laid. "I was all run down" is the common explanation. Now, we submit that the planting of the seed is not so important as the preparation of the soil for it. If the seed is to be fertilized, there must first be the furnishing of conditions favorable to its due development. This is especially true in the matter under consideration, because the seed is quite sure to be pretty widely distributed anyway, whether or not the soil, which in this instance is the human system, has been made ready to give that seed a hearty welcome.

It is claimed by experts, apparently with good reason, that infection with the Koch bacillus is practically a universal experience, during the first ten or twelve years of human existence. Careful records of many scientific autopsies seem to bear out this view. The strong constitutions among us ordinarily are able to overcome the injurious effects of this early infection, before these effects have gone far enough to do serious damage. Nature rises to the emergency, and successfully combats the insidious enemy. In a large proportion of cases, an immunity to future attack is believed to be conferred, similar to that of vaccination. The weak constitutions, on the other hand, are by nature predisposed to develop disease when conditions arise which favor such development. They cannot easily throw off infection.

At this point in our present discussion, the paramount importance of strictly hygienic living, and more especially the necessity of establishing and maintaining good nutrition as the habit of one's life, becomes unmistakably apparent. No matter what the other causes of physical depletion or men-

tal depression that may exist, in any instance, a steady habit of good nutrition will go further than any other counteracting influence to affect or overcome a weakened resistance. Even although no untoward circumstances of other sorts come into one's life, a failure to provide proper and regular nourishment will of itself lay open the system to hostile attacks of any and every variety. It is fair to conclude, therefore, that the peril from the presence of the tubercle bacillus, encroaching on every hand, has been somewhat overemphasized, and the fortifying effects of suitable and sufficient food and drink have been underestimated. Indeed, everything must be subordinated to this simple but essential consideration, if justice is to be done to the situation in which we find ourselves.

It is not too much to say that a comparatively poor physical endowment, under the constant support of a habitually adequate assimilation of nourishment, coupled with reasonable proportions of outdoor air and exercise and rest, and a wise observance of the rules of health, may count upon the avoidance of many varieties of infection, and, where these cannot be avoided, may expect to undergo only light attacks of disease, readily and safely endured. Again, a more vigorous constitution, poorly nourished, by reason of carelessness or inattention, or owing to the pressure of exceptional privation, will find itself subjected to many passing illnesses, *against which the system has not been sufficiently fortified by good nutrition,* and will hardly escape certain unfavorable after-effects. These naturally will contribute to the further reduction of that degree of original resistance which characterizes a physique well-endowed by nature.

With these points kept clearly in mind, one may boldly state that we all dwell daily in the midst of infections, receiving unconsciously to ourselves or others the potential germs of various diseases, in the course of infancy, childhood and adolescence. The balance of probability, to say the least, is in favor of those individuals and families who have been well-nourished from the start. Some wise man said that in order to secure a satisfactory education, in any given case, we must begin with the child's grandmother. This great question of the personal possession of health and expectation of life takes us back at least two generations. It is not enough to provide hot lunches for hungry school-children, in city or country. All the after-care of our boys and girls will prove of little avail to make up for scanty or improper or poorly-judged nutrition during the prenatal existence of the individual. We cannot tell how the bones grow in the unborn, perhaps, but we know, or ought to know, that if the mother is lime-starved during that crucial period, her child, *and by natural sequence all its future offspring,* must suffer from inadequate, not to say stunted, physical and mental endowment. Exceptions, if any, only serve to prove the rule.

To counteract the tendency to tuberculosis is of infinitely greater importance than to take the most scientific care possible of patients already discovered, however early in their lives, to be in the clutches of this desperate foe. If people are not well-nourished, and their blood clean and untainted, how can they in the nature of things expect or hope to bring into the world strong and healthy children? Can the stream rise higher than its source? Nature may, and often does, make a show of abounding health in children of weak parents, owing to the wonderful impulse of vitality which commonly belongs to early years. But some day the fact of the depreciated stock will appear. How often one sees bouncing babies, blooming girls, and husky-looking boys and young men, begin to grow pale and thin and weak, unaccountably as we often say, for no apparent reason except that their start in life was under the handicap of physical weakness, most commonly due to a lack of proper assimilation of nourishment or careless habits of life on the part of one or both parents. These children simply are not well-born. Too many of our best and most useful men and women die before their time. Human life is shortened, chiefly, because human beings are not enabled to enjoy proper and sustaining nourishment. We are jerry-builders of the house of life, and at the first real shock it tumbles in ruin about us.

Our plea, then, is for an intelligent diet for everybody, but especially for those who hope to have children and grandchildren, if they wish to see their offspring vigorous and strong. We plead for every kind of hygienic living, even in things permissible, for the sake of those innocent and confiding little ones to whom we can impart nothing more desirable or essential than sound health, *mens sana in corpore sano.* We plead for soap and water, for cleanliness of body and mind, that our children, dearer to us than life, be not tainted or weakened by our neglect or carelessness. We glorify the homely virtues of self-control and self-denial and sobriety, lest the stock we hold in trust for future generations should suffer degeneracy through any fault of ours.

Tuberculosis is a disease of malnutrition. We insist, we cry aloud, we publish it from the housetops as our message of warning to the men and women of today, that there is no such thing prospective or possible as the control or the conquering of tuberculosis, unless and until we are all willing and determined to see to it that life-long habits of hygiene, and of the adequate assimilation of proper nourishment, become a religious duty in every household and family. If we will not live rightly, and eat and drink wisely, our children must pay the penalty for our shortcomings. It is not so much a question of what we shall eat or not eat, for oftentimes what is one man's meat may prove another man's poison. But each of us must decide for himself and for herself, that whatever goes down his or her throat in the way of food or drink shall be constructive, and not destructive, shall help and not hinder the wholesome processes of nutrition and of elimination. Experience is a good school, few will learn in any other, and some hardly then. Forewarned is forearmed, and an ounce of prevention is worth tons of medicine. Establish good assimilation, secretion, excretion and elimination, at the outset of life, or as near that as possible, and strive diligently and unceasingly to maintain them, and you need not fear either the onset or the sequel of any infection.

Since, by all accounts, from those who have made the most thorough study of this problem, we can-

not be sure of avoiding the personal uninvited visits of the tubercle bacillus, whose name is legion, even under the most strenuous precautions, let us, for our own sakes and our children's sakes, live as reasonable men and women should live, eat and drink as intelligent men and women should eat and drink, who prefer to become and to remain, if not wholly immune at least superior to the poisons which good nutrition and hygienic habits of life alone can suffice to render harmless, alone suffice to overcome. "Had I known beforehand," said an ex-patient to the physician, "what I learned in one year at the sanatorium, about taking care of my health, I don't believe it would have been necessary for me ever to go there." In his chapter on "Symptoms," Dr. Francine of Henry Phipps Institute says, "Nothing can be accomplished in the treatment of tuberculosis until the gastrointestinal function is restored." May we not go a step further and say, "Nothing can be accomplished looking toward the eradication of tuberculosis, until the gastrointestinal function of every man, woman and child has received the full measure of respect and protection to which it is entitled?"

Due weight must be given to the statement of the late Dr. Osler, quoted from his "Historical Sketch": "Of course we have to recognize the very widespread prevalence of the infection. Only a comparatively few persons reach the age of fifty without a focus somewhere of tuberculosis. Upon the personal hygiene of the individual depends largely whether or not he becomes consumptive. All debilitating circumstances render the body less able to keep the invader in check." For example, there is no longer any question as to the injurious effects of the moderate habitual use of alcoholic beverages and of tobacco in any form. That these poisonous substances tend powerfully to reduce resistance, in every case, is a scientific fact that should be more generally recognized. Advertisements do not mention this fact. Their destructive influence upon the heart and the nervous system, as well as upon the digestive organs, coupled with irregular and abnormal habits in other respects, directly contributes to the causation of tuberculosis, and to its development after the actual process of the disease has become definitely established. It is notorious, indeed, that nothing more seriously interferes with the progress of many patients toward relative recovery and restoration to usefulness, than a childish adherence to habits of which it may be said that they not only depress the bodily condition but enervate the mind.

Two steps in advance we all must hope for, and do what we can to encourage. First, physicians in general practice, who are called upon to examine patients in whom incipient tuberculosis is suspected, should no longer be excused for telling such patients that it is only a bronchial condition. It is a pity that people generally are left in such ignorance as to believe this, when the existence of tuberculous infection is a well-nigh universal experience. No sensible person need allow himself to become the victim of undue apprehensiveness in regard to it. If our daily lives were wisely ordered, so as to enable us all to avoid or resist the infection, then actual tuberculous disease would become comparatively rare within a generation or two. More people die of ignorance and carelessness than from any other cause. If our children were taught in school what patients go to the sanatorium to learn, there would be less need for sanatoria. Secondly, a slight hemorrhage is not necessarily to be regarded as a vital or even as a dangerous symptom. Dr. Lord says, "In the majority of cases this symptom appears to influence the outlook little if at all." The same authority indicates that a hemorrhage is less menacing than an effusion of blood in the lungs when not expelled therefrom. Hence, a slight actual hemorrhage may be a benefit, since it is one of Nature's own measures for relief. Strong men have had in their youth an attack of this sort, and yet these same men have afterward lived in health and activity to a good old age, in part no doubt because they thus learned caution.

THE TRAINING AND PROPER RECOGNITION OF THE PHYSIOTHERAPY AIDES.

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PHYSIOTHERAPY has heretofore met with more or less disfavor among the members of the medical profession because of the lack of thorough scientific courses in physiotherapy in medical colleges and schools of nursing and the low standards of thoroughness and scientific exactitudes insisted upon.

The value of physiotherapy as an important and indispensable adjunct to medicine and surgery is now recognized and is being rapidly taken up by the medical profession. This has been visibly demonstrated by the installation of Departments of Physiotherapy in many of the Allied hospitals during the World War. The United States Government established a Department of Physiotherapy in connection with the Surgeon-General's Office at Washington, thus giving Government recognition to physiotherapy which was the only form of "drugless therapy" that received such recognition. The results obtained from the application of physiotherapeutic measures among the wounded soldiers in our reconstruction hospitals have been most gratifying and there is no doubt that in all the Government hospitals of the future the Department of Physiotherapy will be one of the foremost. In fact, so well known have these treatments now become that nearly all up-to-date hospitals and sanatoria have installed departments of this character under the care of competent and skilled physiotherapists.

Physiotherapy is a "specialty," and therefore requires "special training." As the demand for this form of therapy is now steadily increasing, it becomes absolutely necessary that there should be highly skilled and thoroughly trained men and women to meet this need of the profession. This requires the teaching of a college solely devoted to this line of work with all its clinical facilities and

with competent instructors to demonstrate and teach the various methods upon the living subjects or patients in the clinics. The subject of physiotherapy should be included in the curricula of all medical colleges, so that the graduate M. D. could intelligently supervise and prescribe this form of treatment. It should be one of the required subjects of every nurses' training school, thus enabling the graduate nurse to become a skilled physiotherapist.

Physiotherapy includes principally hydrotherapy, electrotherapy, massotherapy, vibrotherapy, phototherapy, thermaerotherapy, kinesotherapy, etc., thereby embracing any form of treatment that is administered by manual or mechanical means, which tends to restore the normal physiological function of the body. In order to do this it is necessary to have a thorough understanding of anatomy, physiology, pathology and hygiene.

Due to the remarkable development of physiotherapy it is practically impossible to man these departments with graduate medical personnel. The reasons for this are obvious:

1. The inexcusable lack of teaching of physiotherapy in medical and nursing schools.

2. Most young physicians prefer other lines for the development of their special faculties. Only a small number deliberately select physiotherapy as a permanent career. The same may be said about the nurses.

3. The general practitioner does not attain expert physiotherapeutic acquirements, as he seldom feels that he has the time to spare for either the study or the practice of physiotherapy.

4. The graduate or registered trained nurse is incompetent to give physiotherapeutic treatment as the subject was not taught or demonstrated to her in her class or hospital work.

We are therefore confronted with the following situation:

1. A rapidly growing appreciation on the part of the medical profession of the need for help or assistants in physiotherapy.

2. The establishment of more and more departments of physiotherapy in health resorts, sanatoria and hospitals which are taking part in the standardization plan now under way.

3. The development of private physiotherapy departments in the offices of individuals or groups of individuals practicing medicine and surgery or specialists in neurology, psychiatry and orthopedics. All this has created a demand for workers which the medical colleges and nurses' training schools alone could hardly supply, even were their graduates willing to enter upon this career.

The medical directors of physiotherapy departments have been helped materially by the advent of the "Physiotherapy Aide." Who and what is a "Physiotherapy Aide"? He or she, more commonly the latter, is a faithful ally and helper to the director of physiotherapy or his assistants. It is sufficient to say that at the present time there is a group of women (and an occasional man) who have seriously entered upon the career of physiotherapeutic work. Their preliminary training has been as variegated as that of the medical graduate of the pre-standard days of medical school requirements. Some have just "picked up" the technique around some doctor's office, sanatorium, hospital or health resort, and have little or no education and possibly have begun their medical work in the humble capacity of office attendant. Others have a high school education and have then secured a position as a helper. More recently a number of college-bred women have prepared themselves for the work by taking up science and physical culture courses. In short, just as the demand has grown, so has the supply been made fairly adequate by the entry into our ranks of these women workers and, as a better appreciation of their labors has been manifested, so a better prepared class are entering. The reliability of the graduate in physiotherapy is in direct proportion to his or her general education, training and clinical experience, just as is the case with any other special workers in medicine. I have known physiotherapists who have gone the length and breadth of the land, surveying and watching the work at various sanatoria and hospitals, taking special courses with various specialists, returning much improved in technique, just as is done by all workers in medicine who wish to keep abreast of the times. The well trained, properly educated, honest and reliable physiotherapy aide is of inestimable help to us and we cannot get along without her because she is fully able to give physiotherapy treatments as required by physicians in their every day practice.

Owing to the great demand for physiotherapy aides or graduates in physiotherapy, and the scarcity of medical and nursing talent to perform the work, we must look elsewhere for help. That "elsewhere" is the graduate physiotherapy group. Since their work is highly satisfactory it behooves us as medical men, to whom these people come for their employment, to lay down certain standards both for preliminary training, theoretical and clinical physiotherapeutic education, which we consider fitting requirements for entrance upon serious labor of this kind.

Medical examining boards reinforced by the remarkable self-purifying process undertaken in the past twenty years by the medical schools, urged and helped by the Counsel on Medical Education of the American Medical Association, have brought order out of chaos in American medicine and are producing a medical product called a "physician," who is really properly trained to pursue his calling with the minimum of danger to the individual citizen who from time to time is designated the "patient." The medical school problems are therefore well nigh solved. The same may be said of the training schools for nurses and their product the "nurse." However, this is not so with the physiotherapy "aide." We have no organized schools for their training, neither have we State medical examining boards for physiotherapy aides or graduates in physiotherapy, nor does there exist, so far as I can ascertain, any board, committee or association which passes upon the qualifications of these physiotherapy aides. During the late war their services were much sought after for government work and were eminently satisfactory according to the army authorities. The United States Public Health Service also uses the services of physiotherapy aides.

If you will note the number of advertisements

each week in the columns of the leading journals asking for physiotherapy aides or graduates in physiotherapy you will gain some idea of the insistent demand for them. If you will also realize how difficult it is to secure the services of an "aide" at a distance, who has by virtue of the present haphazard system, no diploma or certificate, except letters of recommendation from past employers, you will likewise appreciate the difficulty for a medical director of physiotherapy to engage these people without a trial, which at times is very expensive and impossible. How much better would it be were the prospective aides able to say, "I am a graduate in physiotherapy from this or that college and hold a certificate of ability from this or that medical board," thus simplifying the process of employment and of the appraisement ability considerably.

Recommendations. — 1. The establishment of schools, under proper direction, for the training of physiotherapy "aides".

2. The recognition of graduates in physiotherapy by some kind of board, or possibly some volunteer examinations conducted by a representative medical director of physiotherapy in each one of our metropolitan cities, with authority to pass upon the qualifications of applicants to practise physiotherapy and give a certificate of merit to those who deserve it.

3. The organization by the graduates in physiotherapy, themselves, of an association having for its objects the betterment of their professional status, the purging of incompetent aides from their midst, and the spreading of propaganda throughout the land among organizations and colleges for the purpose of enlisting the interest of women and men in this work, and encouraging the entrance of properly trained persons into physiotherapy schools, thereby, giving us competent graduates in physiotherapy called "aides."

29 Bridge Street.

AN IMPORTANT SIGN IN THE DIAGNOSIS OF BEGINNING PULMONARY TUBERCULOSIS.

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Laënnec, in 1819, gave to the world his work "de l'auscultation médiate ou traité du prognostic des maladies des poumons et du cœur, établi principalement à l'aide de ce nouveau moyen d'exploration." It would seem that this was the first work to deal at length on auscultation. The immortal services of Laënnec to medicine marked the beginning of a new era in the diagnosis of internal diseases.

Later in 1841, Henri L. Roget, in conjunction with Barth, published a "Traité pratique de l'auscultation."

In 1833, Doctor James Jackson, Jr., of Boston, while a student in Paris, communicated to the Société Médicale d'Observation a paper on the prolongation of the expiratory sound as an important sign of the early stage of phthisis. This sign is now universally recognized. Among some of our more recent teachers of physical diagnosis may be mentioned Alfred L. Loomis and Austin Flint, New York; J. M. Da Costa, Jr., Philadelphia; R. C. Cabot, Boston.

The interpretation and conception of auscultatory phenomena remains essentially the same as in the days of Laënnec and Skoda. Laënnec maintained that these were pathognomonic signs for definite morbid conditions and formed empirical categories of sound. Skoda endeavored to place his findings upon a scientific basis, hence, his memorable physical rules founded on principles of acoustics.

The works of to-day on physical diagnosis do not offer much on auscultation that has not been investigated by the cultivators of physical diagnosis of the nineteenth century.

During the course of time innumerable modifications and combinations of Laënnec's instrument have been made, but few are of value. In diseases of the chest the stethoscope proves of most value in stout persons or in cases where the examiner has defective hearing.

When the chest is not excessively fat or muscles too well developed, auscultation should be practised by the ear alone. A chest emaciated or covered with hair cannot be successfully auscultated with any instrument.

The value of auscultation in the early diagnosis of pulmonary tuberculosis is questioned by many writers. This is so prevalent that I am prompted to use the language of Doctor Oliver Wendell Holmes who, in discussing the question, "How far are the external means of exploring the condition of the internal organs to be considered useful and important in medical practice" said: "At the present day it is well known that some practitioners of certain merit, and particularly some who pride themselves on strong sense and intuitive sagacity, habitually neglect and depreciate the value of physical signs, even of thoracic disease."

Is there any valid reason why pulmonary tuberculosis should be called "chronic," or perhaps, better to say, become chronic? It is my experience based upon clinical evidence that 90 per cent. of the cases of pulmonary tuberculosis can be detected before the usual stereotyped signs and symptoms as crepitant râles, percussion notes, narrowing of apical resonance, cough, anemia, palpitation, or slight fever, become recognizable. Why the use of the words initial, incipient, or developmental period, to express a condition not fully described by writers under these captions.

The signs and symptoms usually attributed to *phthisis incipiens* are certainly not present at a stage that pulmonary tuberculosis should be recognized!

The writer of to-day, for convenience, distinguishes three stages or degrees of pulmonary tuberculosis: (1) the initial, incipient, or developmental period; (2) the stage of well-established infiltration; and (3) the terminal stages with signs of cavity formation. In referring to patients, they are classed as mild cases, cases of medium severity, and advanced cases.

The mild cases are usually described as those in which the disease is limited to a small area in one lobe. This area is the apex and does not extend below the clavicle or the spine of the scapula. There may or may not exist fine râles that are non-con-

sonating. The medium severe cases are those extending beyond the limits of the mild but not as far as the advanced case. The advanced cases involve one whole lobe or several lobes, with cavity formation. The stage of pulmonary tuberculosis that is of prime importance and about which so little is apparently known is the initial stage. The physical signs attributed by most writers to phthisis incipiens are as follows: Râles heard at one apex in front and rear which may be either fine crepitant râles, or bronchi. The enfeebled, or roughened respiratory murmurs, with prolonged expiratory sound, cog-wheel, or indefinite breathing may be in evidence. The percussion note may be normal, or there may be slight deviation above or below normal pitch. On inspection, a slight lagging of movement of affected side. Dry cough, with or without sputum, is a common symptom. Tubercle bacilli may be demonstrable in the sputum. Occasionally hemoptysis takes place. Anemia, dyspepsia, fever and pleurisy are noticeable in many cases.

These signs and symptoms are not found in more than ten per cent. of the cases of beginning pulmonary tuberculosis. The ninety per cent. of the cases of actual beginning pulmonary tuberculosis are not diagnosed by these signs and symptoms. It is to this class of patients this paper is devoted.

In the years from 1903 to 1913, the writer examined some 20,000 persons. These people represented various walks of life from laborers in the mills to bankers and presidents of large corporations.

A condition not previously observed by me was found, from time to time, in the examination of the lungs. It was not a sound described in texts and was for awhile puzzling.

After a number of years of close observation of each patient the sound was found to exist in only one condition, *i.e.* pulmonary tuberculosis. One who has used or heard the sound of a fine wood-plane can appreciate the sound. The sound may often vary in pitch between that of the wood-plane on soft pine and a soft rasping. It may be continuous or alternating through the entire period of inspiration, but is not usually heard on expiration.

The sound is usually heard best in the second or third intercostal spaces anteriorly, on the side affected, between the sternal line and the midclavicular line.

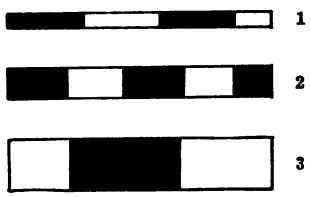
The abrasion of lung tissue or infiltration on the external surface or in the parenchyma of the lung which produces this diagnostic sound does not affect, or cause abnormalities of voice but affects the breath sounds of inspiration.

The normal inspiratory sound is a soft blowing murmur which can be very well imitated by placing the mouth and lips in position to articulate the letter "F" and drawing in gently to the end of inspiration.

Roughened breathing is often audible in infiltrated areas. The interrupted breathing which assumes a jerking or saccadate character (cog-wheel breathing) is looked upon as of importance in apical tuberculosis.

The abnormal inspiratory sound to which I have referred, is imitated by placing the lips and tongue in position as if to articulate the letter "T." Then make the sound "shlu" by taking a full slow inspiration in an undertone, or alternate as graphically described in figures 1, 2, and 3. This inspiratory sound may be continuous or interrupted so as to consist of one, two or three parts. Rarely it may consist of four parts.

The following diagram will, in a graphic way, express nearly the sound "shlu" as indicated by the shaded spaces.



The dark spaces represent the sound "shlu" heard during inspiration: 1 small, 2 medium sized, 3 large lesion.

The sound may vary in intensity from the finest sound expressed in the diagram to a loud sound as might be shown in 3. Studying clinically the condition of the lungs and of the pleura, immediate auscultation alone is of value in the early diagnosis of the incipient stage of pulmonary tuberculosis. It is true that the methods of inspection, thoracography, spirometry, palpation, mensuration, percussion, *x*-ray examination, examination of sputum, and exploratory puncture may be of value in leading to a diagnosis or a differential diagnosis, but valueless in arriving at an exact early diagnosis of beginning tuberculosis.

In cases of tachypnea or in cases of bradypnea, or in cases of dyspnea associated with asthma bronchiale, the "shlu" sound I have ascribed to incipient pulmonary tuberculosis may be submerged or entirely obliterated.

In the years from 1914 to 1921, I examined the lungs of 12,000 persons. This includes 3,000 volunteer enlisted men in 1917, and approximately 4,000 drafted men, in 1918.

The sign was looked upon as of importance for diagnosis of beginning pulmonary tuberculosis. Bearing this in mind, I found it to be confirmed in 90 per cent of the cases diagnosed as incipient pulmonary tuberculosis. It is with the preponderance of evidence that I affirm with confidence the diagnostic value of this sound.

603 WRIGHT BUILDING.

BACILLUS AEROGENES CAPSULATUS INFECTION COMPLICATING TYPHOID FEVER.

WITH REPORT OF A CASE.

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SECONDARY infection with the *Bacillus aërogenes capsulatus* (Welch) as a complication in the course of typhoid fever is probably an infrequent occurrence, for only nine cases could be found by the authors in the literature. These cases may be divided into two groups; first, those without any perforation of the intestine, in which the gas bacillus, hav-

ing gained entrance from the gastrointestinal tract, presumably through an ulcer, produced a more or less general infection of the organs; and second, those in which perforation of the intestine had occurred, and in which the gas bacillus was demonstrated in the peritoneal exudate. In this second group, however, there was no generalized involvement of the viscera in any case, and the presence of the bacilli in the blood in the few instances noted may have been due entirely to a post-mortem invasion.

In the first group are the following cases. In 1900 Howard[1] reported a case (No. IV) of typhoid fever in which there had been no subcutaneous emphysema before death. Meteorism had been marked. At autopsy, however, there was subcutaneous emphysema, and gas-bubbles were found in the mucosa of the gall-bladder and bile-ducts, in the liver, spleen, kidneys, inferior vena cava, and portal veins. The excessive development of gas in the gall-bladder and the liver, and its paucity in the other organs and in the blood were regarded as evidence that the biliary tract had been the portal of entry.

In Howard's case No. VIII there also had been no subcutaneous emphysema observed before death, but there had been marked tympanites. At autopsy, subcutaneous emphysema was marked, and air-bubbles, due to the development of the gas bacillus, were found in the heart and blood vessels, and in the abdominal and thoracic viscera. In this case, a gastric ulcer was regarded as the portal of entry, because of the presence of gas cysts about the ulcer, and the presence of gas bacilli in its necrotic surface. Ulcers and hyperplastic Peyer's patches were present in the ileum.

Before this, in 1896, Welch and Flexner[2] (Case XXII) had reported a case of Howard's, of a man who died in the third week of typhoid fever. There was no tympanites present at death. At autopsy, extensive subcutaneous emphysema was present. The blood-vessels and the thoracic and abdominal viscera contained gas. Typhoid ulcers without perforation were found. No suggestion was made as to the probable portal of entry of the gas bacillus in this case.

A case reported by Bowen[3] very likely belongs here also. Unfortunately no laboratory findings, no statement as to whether an autopsy was performed, or other confirmatory evidence are presented. The statement is made that in the fourth week of a severe case of typhoid fever, emphysema commenced on the abdomen and spread throughout the body. It was followed in three days by death.

In the group of cases of typhoid fever with perforation and peritonitis, in which the gas bacillus was found in the peritoneal exudate, or in the exudate and in the blood, the following instances are on record. In 1896 Welch and Flexner reported three cases. In one, the gas bacillus together with streptococci and colon bacilli were demonstrated in cover-slip preparations from the peritoneal exudate. Typhoid bacilli and colon bacilli grew in culture from the organs. Free gas was present in the peritoneal cavity, but none in the blood-vessels or viscera.

In the second case, gas was found in the peritoneal cavity, but none in the heart or viscera. Gas bacilli and colon bacilli were present in the peritoneal exudate.

In the third case, there was gas and an extensive fibrino-purulent exudate covering the peritoneal surfaces. Gas bubbles were present in the inferior vena cava, the systemic and portal veins, and in the right heart. Cultures from the peritoneal exudate showed gas bacilli, colon bacilli and streptococci. The gas bacillus was found also in the blood. Because the autopsy was performed as late as twenty-two hours after death, and because there were evidences of cadaveric decomposition, the gas found in the heart and vessels in this case was looked upon as due to a post mortem development of the gas bacillus.

Howard also reported one case belonging in this group. The patient had died in the fourth week of typhoid fever. Two perforated typhoid ulcers were present in the ileum, and several small ulcers were situated in the mucosa of the stomach. One of the latter showed, microscopically, gas cysts and large numbers of "large stout bacilli" in the necrotic material of the ulcers of the ileum. A few gas bubbles were found in the branches of the portal vein in the liver, and in the inferior vena cava. The other organs were free from gas. The peritoneal cavity contained gas, feces and a fibrino-purulent exudate, from which the colon bacillus and pyogenic cocci were obtained in culture. No anaerobic cultures were made, and the diagnosis of the presence of gas bacilli in this case rested upon the morphological appearance of bacilli found in cover-slip preparations, and in the hardened sections of the stomach.

Hibler[4] isolated a gas bacillus (called by him the bacillus phlegmones emphysematosae Fraenkel), together with typhoid bacilli, colon bacilli, streptococci and staphylococci, from the peritoneal exudate of a case of perforated typhoid ulcer.

The cases cited above are the only cases found by the authors in the literature. Recently the authors have had an opportunity of observing a typhoid patient, in whom the gas bacillus infection, occurring in the third week of the disease, was followed in a very short time by death. There was no perforation of the intestine.

CASE REPORT.—A white man, aged 29, was admitted to the New York Hospital on December 8, 1920, and died December 11, 1920. Before admission he had been confined to bed for two weeks with fever, headache, severe diarrhea, and anorexia. At the time of his admission he was well nourished, but appeared to be acutely ill. His face was flushed. There was no cyanosis. The abdomen was distended and tympanitic. The spleen was extended 6 cm. below the costal margin. There was a diffuse macular rash over the chest and abdomen that did not disappear on pressure. A few moist râles were heard over the bases of the lungs posteriorly. The red cells numbered 4,490,000, the white cells 2,400, polynuclears 70 per cent., lymphocytes 24 per cent., and large mononuclears 6 per cent. The systolic blood pressure was 100, the diastolic 66. The Widal reaction was strongly positive. The urine contained a trace of albumin, hyalin and granular casts. On the first two days in the hospital the temperature varied between 103° and 104° F.; the pulse rate between 108 and 120, and the respirations between 28 and 30. The treatment consisted of hydrotherapy, liquid diet, and enemata. A blood culture taken on December 9 remained sterile for twenty-four hours; after five days it was reported as being contaminated. On December 10 the patient became delirious. The temperature dropped at noon on that day to 101.2° F., the pulse rate rose to 136, but the respiration rate remained unaltered. Enemata relieved the abdominal distention.

On the morning of the 11th the patient seemed quieter and the stools were less frequent. The skin rash had not changed in appearance or distribution. Following a slush-bath at 4.30 P. M on this day he became restless, dyspneic, and slightly cyanotic. The lungs gave no physical signs of consolidation. The pulse was rapid (140), but was otherwise unchanged. The abdomen was not tender, and there were no signs of rigidity. An area of subcutaneous emphysema about the size of the palm of the hand was found in the right anterior axillary region. No similar areas could be found anywhere else. A needle was inserted into the subcutaneous tissue of this area for material to culture, but none was obtained. A blood count made at 5 P. M. showed a white cell count of 23,400, of which 60 per cent. were polynuclears, 29 per cent. lymphocytes, and 11 per cent. large mononuclears. The temperature rose to 105.4° F., the respirations to 40, and the pulse to 154. The respirations soon became shallow and infrequent, and the patient died at 7.25 P. M.

Autopsy.—The body had been kept in the icebox in the morgue overnight at approximately 10° C., and the examination was started seventeen hours after death. Post mortem rigidity was present in the extremities. The face was cyanotic and there were extensive cyanotic patches over the arms, chest, and abdomen. Subcutaneous air crepitus was easily elicited over the neck, thorax, and outer surfaces of the thighs. The abdomen was distended and tympanitic. There was a needle puncture wound in the lower part of the right side of the chest in the midaxillary line. Around it there was an irregular area of reddening of the skin about 20 cm. in diameter, with large blebs containing gas and serum. There was extravasation of blood into the muscles of the thorax beneath this area. A small needle puncture wound was present on the outer surface of the right lower lobe of the lung, and the pleura around it was stained with blood.

Innumerable small gas bubbles were visible in the subcutaneous tissues of the abdomen and thorax. When the peritoneum was nicked a large quantity of gas escaped with a pop through the opening. There was no perforation of the intestines, nor was there any inflammatory exudate present in the peritoneal cavity. The mesentery and the omentum were the seat of numerous gas-containing blebs. In the mesentery there were also many enlarged soft lymph-nodes, the majority containing bubbles of gas.

The pleural cavities were free from fluid and adhesions. The pleural coverings of the lungs were dark red. The lower lobes of the lungs were firm in consistency; the cut surfaces were dark red in color and gas bubbles in blood-tinged fluid could be easily scraped from the surfaces. The upper portions of the lungs were congested and spongy to the touch.

The heart was large and exceedingly soft and flabby. The left ventricle was dilated and contained gas. The endocardium of both sides, including the heart valves and the intima of the aorta, were stained diffusely red, due to the imbibition of hemoglobin. The heart valves were otherwise negative.

The spleen, much enlarged, was 25 cm. in length. It crepitated like lung tissue, and was extremely soft and easily torn. On the cut surface were seen extensive hemorrhages and numerous gas-containing cavities, which latter varied from a few mm. to 1 cm. in diameter. An accessory spleen, 2 cm. in diameter, in the gastrosplenic ligament, was likewise very soft and contained gas bubbles.

There were many gas bubbles in the perirenal fat tissue. The kidneys were very soft. Numerous gas blebs, closely packed together and pinpoint and pinhead in size, were present in the kidneys, confined chiefly to the cortex. The normal markings of the kidneys were destroyed.

Greenish post mortem discoloration was present on the lower surface of the liver. Gas bubbles escaped from the portal veins on the cut surface. Macroscopically, no gas blebs could be distinguished in the liver substance, and the liver lobules were fairly distinct. The gall bladder was negative.

The stomach and duodenum were negative. Close to the ileocecal valve were large typhoid ulcers which had sloughed considerably, but were not entirely cleaned out. Slightly higher up the ulcers were filled with grey necrotic material, showing beginning sloughing. Still higher up there were pink, hyperplastic Peyer's patches without necrosis. None of the ulcers extended very deeply. The mucosa of the colon was the seat of numerous hemorrhagic spots each about ½ cm. in diameter.

Permission to examine the brain was not obtained.

Microscopic.—Liver: The liver cords are greatly distorted, and the liver cells vary much in size and in their relation to one another. The nuclei stain faintly. There are numerous irregular round holes corresponding to gas cysts. Of these many contain fine granules of brown pigment. The cells themselves also contain many fine irregular vacuoles.

Kidneys: The nuclei of the cells of the convoluted tubules stain either very faintly or not at all. The nuclei of most of the glomeruli and of the collecting tubules, on the other hand, stain fairly well. The cytoplasm of the cortical epithelium stains poorly and has the appearance of simple necrosis. There are very many large cavities limited to the cortex, compressing the intervening tubules and glomeruli.

Lung: The structure of the lung is greatly altered, the alveolar walls being distinguishable only with difficulty. There is much serum present and numerous gas cysts. A large quantity of fine granules of brown pigment is scattered over the section. The red blood cells within the blood vessels are pale (hemolyzed).

Intestines: The ulcers have the usual features of typhoid ulcers. There is no inflammatory exudate on the peritoneal surface.

Sections of the liver, spleen, and kidneys show the presence of numerous large Gram positive bacilli resembling the bacillus aërogenes capsulatus in morphology. Sections of the ulcers in the intestine reveal numerous similar organisms in the necrotic material and in the wall of the intestine.

Bacteriological Examination.—Cultures from the spleen show the growth of an anaerobic Gram positive bacillus with the morphological and cultural characteristics of bacillus Welchii, and also of an actively motile Gram negative bacillus having the morphological and cultural characteristics of bacillus typhosus, and which is agglutinated with antityphoid rabbit serum in dilutions of 1:50 to 1:500.

Comment.—In view of the fact that the *Bacillus aerogenes capsulatus* is found in the gastrointestinal tract of the majority of individuals it is rather surprising that the occurrence of secondary infection with this organism in typhoid fever is not more frequent than is reflected in the literature. The necrotic material in the ulcers, one would suppose, would furnish a suitable medium for the development of the organism, but, undoubtedly, other conditions must be fulfilled before it can invade the blood or lymph stream. Just what these factors are is not entirely known, though it appears that in certain instances other organisms prepare the way for its invasion into the body.

On the other hand, the invasion of the gas bacillus may actually be as infrequent as the observations seem to indicate, *i. e.* the physical conditions in the typhoid ulcers, the resistance of the patient, or the virulence of the organism are such that invasion rarely occurs; or, the portal of entry is not opened to the gas bacillus by other organisms.

It seems quite certain that the invasion of the gas bacillus in the present case took place before the patient's death. About three hours before his death a small area of subcutaneous emphysema was discovered, and at the same time he was found to have a marked leucocytosis and a rise in temperature. There was nothing found at autopsy to account for this emphysema except the general gas bacillus infection. Although the entrance of the gas bacillus from the intestinal canal through an ulcer of the intestine could not be positively estab-

lished in this case, still from the findings this seemed most probable.

That he died soon after the appearance of this small area of subcutaneous emphysema tends to confirm the observation of Flexner that the maintenance of life is probably impossible after this organism has established itself in the blood and produced gas there. Extensive subcutaneous emphysema, therefore, is not found during the life of the patient, and a clinical diagnosis of gas bacillus infection in typhoid fever is, on that account, not often made. Much of the gas found at autopsy is probably a post mortem development, the amount depending, among other things, upon the time after death the autopsy is performed and upon the internal temperature of the body.

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EXOGENETIC PRIMARY CUTANEOUS INFECTIONS.*

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IN order to have a proper understanding of the commoner infections of the skin, the subject outlined by the committee, it is well to keep in mind the routes of infection. A description of the known exogenetic and endogenetic cutaneous infections, primary and secondary, and those in which the cutaneous system, in conjunction with other systems, is involved, forms half the text of such a volume as Stelwagon's, from which you may deduce its extent. Before proceeding to the exogenetic forms, it might be well to remark that practically all the infections having an internal or endogenetic origin, such as the cutaneous syphilides, tuberculomas, lepromas, are commonly quite distinctive clinically because of the cell infiltrations of which they are composed. As regards the infections of external origin, we find that they resolve themselves into two groups—those which are primary, such as true impetigo, ecthyma and ringworm, and those which are secondary, such as the infections following scratching in scabies, pruritus, eczema, etc. It is with the primary group that we are particularly concerned in this paper. Primary exogenetic cutaneous infections, like infections involving other body systems, may be caused by vegetable parasites from the highest forms (some species of mould or ringworm fungi, yeast fungi) to the lowest forms (the fission fungi) many of which, as you know have pathogenic properties. As the time allotted to the reading of this paper will hardly permit complete discussion of the long list of even common external primary skin infections and as discussion of one or two of these alone would hardly be satisfactory in my opinion, I thought it best to cover the subject in a more or less general manner.

*Read before Southeast Branch of the Philadelphia County Medical Society, October, 1921.

Of all the multiple forms of cutaneous infections, there are naturally some that are more frequently seen than others; some are commoner in children than they are in adults (for example, ringworm, which is never seen in the adult, impetigo, infantile pyodermas, with its cutaneous and subcutaneous abscesses, which are extremely common in the marasmic infant) and vice versa, some are commoner in adults than in children (as for example sycosis, carbuncle, etc.); further some are commoner in the summer than they are in the winter; others are commoner in certain climates (mould fungus infection is much commoner in the tropical climates) and, finally, some are more frequently seen in the presence of certain abnormal systemic conditions (such as furunculosis, carbunculosis in diabetes, etc.).

But the frequency of a condition cannot characterize it by any means. It is partly for this reason that I hesitate to simply discuss one or two morbid entities as well as for the extremely important fact that as regards cutaneous diseases, the number of modes in which the skin can react to trauma (bacterial or otherwise) is so limited that you can readily see how objectively similar are many of the lesions produced by these organisms. By limitation of cutaneous reaction, I refer to the few possible types of primary elementary skin lesions (redness, papulation, vesiculation, blebs, tubercles, gummata, ulceration) and secondary elementary skin lesions (scales, crusts, scars, pigmentations). Thus it is that cutaneous lesions produced by very different organisms are clinically exactly alike. But aside from this similarity of the so-called typical lesions of an infection, similarity may develop during the course of the disease either from an admixture of varying amounts of blood or pus in various stages of formation, dirt, drugs applied, and what appears to be of paramount importance—virulence of the special strain of organism involved; the greater the virulence the more marked the inflammatory phenomena. Thus, for example, certain cutaneous syphilides may look exactly like an ordinary impetigo, the so-called impetigoform syphilide, a lesion indicative of recent syphilitic infection, like impetigo, usually occurs on the face and specially about the nasal and buccal orifices; a simple impetigo is often mistaken for a ringworm; a deep ringworm infection (called deep tricophytosis) may stimulate a coccogenic condition (parasitic sycosis and coccogenic sycosis); a pustular bromide or iodide eruption may simulate an ecthyma in the former, an acne in the latter. All of this simply goes to show how valuable the laboratory is in establishing a clear cut diagnosis, not only from an etiological but from a prognostic and curative viewpoint, but it must not be understood from this that the clinical diagnosis need always depend on the serology, the microscope and the culture tube.

In a general way it may be said, and this is specially true in cutaneous diseases as it is in ophthal-

mology for example though to a greater degree, that they must be seen to be appreciated and recognized. It requires a pretty good imagination in my opinion and a thorough knowledge of skin anatomy and pathology (which is by the way a prime requisite in any case and from all points of view) to be able to properly visualize a skin lesion after reading or being told about it. Nevertheless since circumstances require it, let us attempt to visualize some of these lesions; the true impetigo, which is a streptococcic affair and which has been so exceedingly common this past summer, begins suddenly, usually in a child, on the exposed surfaces and not uncommonly from contact with some other child in the family presenting similar lesions. It starts as a red or erythematous spot, over which area there appears, within a few hours, a blister or bleb due to an accumulation of serum beneath the horny layer of the epiderm, between it and the mucous body or spindle cell layer. After a variable period of time, one to three days, depending on whether the lesion has been ruptured from scratching or otherwise or whether it has undergone a spontaneous evolution, its appearance changes. If torn off, there remains a red raw superficial excoriated nonulcerated surface which oozes some serum. This serum, which soon becomes purulent to a varying degree, after a time hardens and forms a crust. If left alone, the purulent fluid is to a certain degree absorbed, the remainder hardens, the epidermic elevation falls, becomes wrinkled, and a special sort of crust is produced. I say special in most cases, but it should be remembered that the classical yellowish crust, as if stuck on, as described in all text books, does not always occur, and besides a crust cannot characterize a dermatosis as we shall see. It is at this stage, particularly if there has been any tendency to hemorrhage into the bleb, that the lesion may be mistaken for an impetigoform syphilide. But in this latter case it will be found that after the crust is removed, and it is an axiom in dermatologic diagnosis always to remove a crust and see what is under it before making a diagnosis, it will be found that there is a distinct ulceration present. This rarely occurs in true bullous impetigo; furthermore there is an oozing papule present, due to the round cell syphilitic infiltration (no papulation occurs in true impetigo). With epidermization completed beneath the impetigo crust, this latter falls and exposes the delicate new skin which still has a slight pink color, indicative of a former inflammation, and which gradually disappears without leaving a mark. In many of these cases, where the bleb has been ruptured, central healing occurs first. In such cases the lesion is apt to be mistaken for a ringworm. But in ringworm, although the center may be clear, the peripheral border will be seen to be composed of individual active or dried vesicles, placed side by side, though sometimes confluent, whereas the border in impetigo is composed of the frazzled ends of a continuous epidermic separation.

I should like to discuss other streptococcic skin infections called streptococcias, as well as the cutaneous staphylococcias, morococcias (or the fission fungi infections), tricophytoses or mould fungi infections but the time lacks.

As regards the prognosis of these primary exogenetic skin infections, it may be said that the higher up on the biologic scale an organism is, the more difficult its destruction; the disease it causes is therefore more difficult to cure, lasts longer, and has a greater tendency to scar formation. Furthermore, it is important to recognize that its localization determines the facility with which it can be cured. Infections in the hairy areas of the body are much more rebellious than those involving the hairless parts. Thus ringworm of the scalp is far more difficult to cure than ringworm of the body; a coccogenic sycosis (which is really a staphylococcic folliculitis) is more persistent than a folliculitis of the scalp.

Treatment of these conditions is generally easy; some, however, are more easily managed than others. but all can be cured. The treatment is both external and internal, with the latter as the most important. The increase of the patients vitality is often indicated, with proper food and hygiene. As regards drugs, internally, only potassium iodide which is used in the yeast fungi infections (Bastomycosis) is of value. The alkalis occasionally seem to have a beneficial effect in the deep fission fungi infections, notably furunculosis. Externally, irrespective of the cause of the lesion, never apply an active medicament until all crusts and scales have been removed as action is wanted on the affected areas themselves. Many make the mistake of writing a prescription for some salve and telling the patient to apply it to the affected areas. For higher organisms (ringworm and yeast) iodine is a specific. This has been amply proven by experimental work carried out at the Dermatological Research Institute of Philadelphia. It is applied in the following manner: 1 part tr. iodine in 9 parts of alcohol or ½ per cent. iodine ointment with 1 per cent. betanaphthol. In the treatment of fission fungi (cocci, etc.) calomel in 1-3 per cent. ointment is the best with 3-5 per cent. yellow oxide of mercury second best. Calomel, insoluble though it is, is one of the best germicides we have.

1714 PINE STREET.

Medicolegal Notes.

Privileged Communications—Waiver.—The Mississippi Supreme Court holds that, under the statute of that State making a physician incompetent to testify to facts which come to his knowledge by virtue of his being employed by his patient as a physician, the patient does not waive the privilege because he introduces another physician who testifies for the patient about the same facts. It is held improper practice in such a case to permit the physician to testify at all about such facts even in the absence of the jury. The proper practice in Mississippi courts is to ascertain whether the facts were learned because of the relation, and, if so, to exclude the evidence.—United States Fidelity & Guaranty Co. v. Hood (Miss.) 87 So. 115.

Unlawfully Assuming to Practice Medicine.—In the trial of an indictment charging the defendant with being unlawfully engaged in the practice of medicine and surgery, the Pennsylvania Superior Court sustained a conviction where the evidence established that the defendant, who was not a licensed physician, examined patients by physical tests, made inquiry of their past condition, examined the pulse and tongue to diagnose the cause of the real or alleged malady, after which he prescribed his special remedy to afford relief. It has been uniformly held that where one holds himself out as competent to prescribe, he is engaged in the practice of medicine, notwithstanding the remedy prescribed by him is one of his own invention or compounding.—Commonwealth v. Read, 76 Pa. Superior Ct. 202.

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ACTIVITIES OF THE UNITED STATES PUBLIC HEALTH SERVICE.

IN the fiftieth annual report of the United States Public Health Service, covering the one hundred and twenty-third year of the existence of the service, the Surgeon General outlines the following outstanding activities: (1) The prevention of the introduction of diseases into the United States, or from one State to another State; (2) the investigation of diseases of man and stream pollution; (3) supervision and control of biological products; (4) public-health education, and (5) the operation of a hospital service for its beneficiaries, including disabled ex-service men and women.

In connection with national and interstate quarantine it is stated that the service now operates all of the war-time quarantine stations in the United States, and it has thirty-five officers stationed in Europe to enforce certain quarantine restrictions in regard to ships and passengers bound for ports of the United States. The "epidemic fund," appropriated by Congress for the control of cholera, yellow fever, plague, typhus fever, and the like, has been used by the Public Health Service for the prevention of the introduction of these diseases into this country, or from one State to another. Measures for the control of plague, the presence of which in Florida, Louisiana, Texas, and California was noted in the last annual report, have met with such success that the operations of the service in this connection have been reduced. In noting the fact that no epidemic of serious proportions has occurred in the United States during the year covered by the report, the Surgeon General warns that, owing to the present financial depression, those diseases which have a distinct relation to economic conditions will show an increase in prevalence unless the financial conditions present early and material improvement.

In the line of scientific research the service has continued its demonstrations in rural sanitation, and its investigations of child hygiene, industrial sanitation, influenza, pneumonia, pellagra, trachoma, tuberculosis, biological products for the prevention and cure of diseases of man, pollution of streams, and other allied activities. Among these manifold activities, which are carried on by the Scientific Research Division, one of the most important, it is held, is that connected with cooperative rural health work. Despite the fact that the appropriation for this work made available by Congress was less than ten per cent. of the amount necessary to enable the Federal Government to accept opportunities which were presented at the beginning of the fiscal year through offers from State and local authorities to enter into cooperation in due and reasonable proportion to develop demonstration projects in rural health work, such cooperative projects were carried out in thirty-eight counties in fifteen States. The investment of Federal funds in these undertakings was covered with odds of over eight to one for the support of the work. The Surgeon General calls attention, in this connection, to the stimulating effect of the Federal cooperation. In the development of whole-time rural health service in the United States the Surgeon General reports substantial progress, despite the general economic depression. According to data collected by the Rural Sanitation Office from the State health departments, there were in the United States only 154 counties (over 50 per cent. rural) which, on January 1, 1921, were provided with local health service headed by whole-time county health officers. It is pointed out that this means that less than six per cent. of our rural communities are provided with local health service approaching adequacy for the protection of the men, women, and children against readily preventable health demotion, premature death, and economic disaster resulting from costly sickness. Such a situation, the Surgeon General declares, is of grave importance to the individual citizen, to the local community, and to the whole nation, and should be a matter of acute concern with our local, State, and national governments. Rural health work, on account of distances to be covered and other obvious factors, is relatively more expensive than urban health work, and without assistance and stimulation from central agencies, he says, it is considered clearly established that individual citizens and local communities in our rural districts will not make the progress in the carrying out of health measures which is critically needed. A strong plea is made for proper and proportionate assistance by the National Government to the States for the promotion of cooperative rural health work. For, says the Surgeon General, "if the Federal Government has a right to cooperate with the States in any line of work, the indication is definite for it to do much more than it is and has been doing for the promotion of cooperative rural health work."

While sympathizing with Surgeon General Cumming in his natural desire to promote the health of the country, we believe that such work should be done by the individual States without financial aid from the Federal Government. That provision bringing as it necessarily will Federal supervision of interstate activities, is one of the worst features of the recently enacted Sheppard-Towner bill. As Governor Miller of New York said recently, in an address before the Bar Association, referring to

that bill, it is time "to utter a note of warning against the present tendency to build up a Federal bureaucracy to supervise State activities under the guise of Federal aid, and thus by indirection to change our system of Government and to destroy the limitations upon the exercise of Federal power fixed by the Constitution."

A VERY GRAVE CHARGE.

TWO weeks ago the MEDICAL RECORD commented on a resolution introduced into Congress by Representative Volk calling for a Congressional investigation of the narcotic drug problem and of the present administration of the Harrison law. The resolution stated that many of the Federal and State rulings "point to an organized conspiracy on the part of certain administrators and physicians to drive narcotic drug addicts into established sanitaria purporting to treat and cure narcotic drug addiction." In a speech made by the author of this resolution, in the House of Representatives on Jan. 13, this charge is amplified and made more specific. Referring to the tendency in carrying out the objects of the Harrison law to substitute for the provisions of the act arbitrary administrative opinions expressed in rules and regulations which amount to practically a repeal and nullification of the law itself, Dr. Volk said:

> These rules and regulations have been promulgated by those in charge of the administration of the Harrison law upon the representation and statements coming as the official pronouncements of the New York City Board of Health, presented by a particular small group or clique among whom stand out prominently the names of Royal S. Copeland, health commissioner of the city of New York, Drs. E. Elliot Harris, S. Dana Hubbard, Alfred C. Prentice, and a lawyer. . . . Reliable records, reports, scientific information, and experience have been swept aside by these men and in their place has been set up a campaign of publicity intended in the end to benefit this small coterie who seek to control the avenues of narcotic treatment throughout the country.
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> The agitation emanating from New York City from these men and the department of health is spreading over the entire country and knowingly or unknowingly has evaded and ignored sound medical findings. As a substitute for open discussion of known medical facts there has been set up a propaganda for the incarceration of all drug users, their treatment by routine methods, and complete elimination of the family doctor. An undeniable effort is now being made whereby physicians are to be denied any discretion and power in the prescribing of narcotic drugs and to force all those addicted to the use of these drugs into hospitals exploiting questionable "cures."
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> I charge that this propaganda has been carried on by Dr. Royal S. Copeland, health commissioner of New York City; Dr. S. Dana Hubbard of the New York City Health Department, and Drs. E. Elliot Harris and Alfred C. Prentice, the last two active in the councils of the New York County Medical Society and the American Medical Association. I further charge that Arthur D. Greenfield, a lawyer of New York City, has aided and abetted the propaganda above mentioned.

A similar charge was made in the report of the Committee on Legislation of the Medical Society of the State of New York, published in the *New York State Journal of Medicine* in June, 1921. Referring to one of the vicious bills introduced into the Legislature with the alleged object of furthering the treatment of drug addiction, the report says:

> Where the scheme is not horrible and inhumane it is ridiculous and at the same time sinister. The bill is not a local one; a studied attempt is being made to effect it into law in many States, and an earnest effort is being prosecuted to have the regulations promulgated by the Federal Bureau having charge of the Federal Harrison Act to give that act the same force as this bill would have if it became law. *Verbum sapienti sufficit!* The first Smith bill classes drug addiction among the infectious and communicable diseases presumably to give the same power to boards of health and health officers to commit and hold in isolation drug addicts as they now exercise under the same section in cases of smallpox, diphtheria, and other infections.

And again, still treating of narcotic drug legislation:

> The various committees that have been appointed by national and State bodies to "investigate" these subjects apparently have had as their foremost requirement for membership thereon the proof of lack of experience with the subject to be considered by them and their reports have always been entirely standardized and apparently written *ad hoc* by an interested group comprising not more than ten men in the medical profession and a couple of lawyers. Their investigations have not been unbiased, their findings have not been judicial, and their reports have largely been *ex parte* formularizations. That a Senator of the State of New York should be obliged to state at a public hearing that a bill which he had been asked to introduce, and which had been approved by this State Society, was such in its nature that he felt aggrieved and imposed upon, and immediately withdrew this bill, is a fact to excite surprise, grief, and indignation. . . . Most important of all is it that the medical profession clear itself of all the groups and cliques who are striving not mainly for the benefit of the public and the profession, but for other and ulterior motives.

As this report gives no names, we are left to conjecture whether the "groups and cliques" referred to in the report and in the speech are the same or not. If they are, five men in the medical profession and one lawyer appear to have dropped out, since Representative Volk mentions only these four doctors and one other and a lawyer.

The MEDICAL RECORD is very loth to believe, and cannot believe unless further proof is brought forward, that these men, who are regarded by their friends as honorable members of an honorable profession, could be guilty of the despicable practices with which they are charged in the quoted remarks and elsewhere in Representative Volk's speech. But since the charges have been made publicly by a physician and a representative from this State in Congress, the men named can do no less than disprove them. Officials of the Board of Health of this city and officers of the Medical Society of the County of New York cannot be willing to rest under any such grave imputation as this.

THE PATHOLOGY OF TENONTITIS.

PRIMARY inflammation of the tendons has been studied experimentally by several observers, notably Feltz, Leprince, and Ginsburg, in frogs and rabbits. Their results are alike in all the essential points. The changes in the nutrition resulting from the trauma first act on the protoplasm of the cell elements which increase in size and becomes granular. Their nuclei are less apparent while their envelopes often rupture and the protoplasmic contents infiltrate between the

tendon fasciculi. In this zone of degeneration the deformed and granular cells become glued together in opaque columns and then undergo atrophy. According to Ginsburg a process of regeneration is almost contemporaneous with that of degeneration; that is to say, at the same time that atrophy and absorption of the elements take place, new elements are produced by proliferation of the nearest adjacent cells. These proliferating cells are larger, send off multiple prolongations, are arranged in regular series, and reproduce the first phases of tendon development. Changes arising in the tendinous fibrillæ are not so well known. They consist in swelling of the fibrillæ and albumino-fatty degeneration.

Lejars believes that much the same phenomena arise in the pathology of tenontitis in man, and he divides the process into plastic and suppurating. The tendon is white, opaque, and its surface is dull; it forms a more or less thickened edematous cord, infiltrated with embryonal cells; granular buds cover its surface in plaques or in lines and dip down between the fasciculi. They become fused with the granulation tissue of the wound when the tendon is denuded in a purulent focus; later on they become organized and having become fibrous they create numerous adhesions between the tendon and skin. In suppurating foci the tendinous tissue itself becomes infiltrated with pus; it is gray in color, soft, and pliable. Unfortunately, in this classification Lejars makes no distinction between inflammation of an exposed tendon and tenontitis without injury to the integuments.

Studying inflammation of the tendo Achillis, Raynal insists upon three anatomical considerations: (1) On the existence of a fibrous space formed by the doubling of the aponeurosis of the tibialis posticus; the superficial layer passes behind the tendo Achillis while the deep layer unites on each side of the tendon, forming a dihedral angle; (2) on the existence in this fibrous space of connective tissue containing masses of fat; this cellulo-adipose tissue is completely separated in the normal condition from the subcutaneous connective tissue by the deep superficial aponeurotic layer, while the deep layer separates it from the deep cellular tissue; (3) on the absence of the synovial membrane which normally facilitates movement of the tendo Achillis in the fibrous sheath. These considerations are worth bearing in mind. They resemble the arrangement found at the lower part of the biceps in the arm. The tendon of this muscle lies in a space filled with cellulofatty tissue, much like that surrounding the tendo Achillis. Now, when tendons are not surrounded by a synovial covering, the interstices of the tendon bundles are directly continuous at the periphery with the peritendinous tissue, and it is from the latter that they receive the elements of their nutrition. Sappey shows that the blood vessels of the tendons are derived from the peripheral venules and arterioles and dip into the interfascicular spaces. The intimate relation existing between the tendon and its cellular atmosphere is therefore evident, and a tenontitis cannot occur without a certain amount of peritenontitis, and vice versa.

The older writers were well aware that when inflammation of an organ did not end in suppuration, induration took place, so that for them, sclerosis was synonymous with chronic inflammation. The essential fact of all chronic inflammation is proliferation of the preexisting connective tissue whose elements multiply abnormally, and progressively take the place of the elements belonging to the inflamed organs. Now, the intimate structure of the tendons comprises not only parallel fibers, but numerous connective tissue cells—the so-called tendon cells. These are exposed to proliferation upon the occasion of the slightest inflammation, but this is relatively long in taking place on account of the scanty vascular supply. In structures so compact and with such poor vascularization as the tendons, it can be readily conceived that a purulent exudate would be produced with difficulty. Then inflammatory processes are almost always proliferative and characterized by the development of induration—sclerosis.

"WHY IS THE WASSERMANN?"

IN an article with this title in a recent number of the MEDICAL RECORD (Dec. 31, 1921), Dr. Stone has put his finger upon one of the weakest spots in modern medical practice, one to which we have often had occasion to refer in these columns. This is the tendency of the physician, perhaps we should say the younger physician, to rely for his diagnosis upon the report of the laboratory rather than upon his own careful study of the patient and thoughtful consideration of the possibilities and probabilities in the case.

"No physician has any right to make or exclude a diagnosis of syphilis upon the Wassermann reaction alone." That is obvious, but most of the discredit which has fallen upon this test is due to this practice, which is more largely followed than is generally realized. Some of it is probably unconscious, for although some men on direct question will freely admit the truth of the statement, their conversation will show that they actually consider a positive Wassermann reaction as proof of the presence of syphilis. The defects of the Wassermann reaction, and of other laboratory procedures as well, are realized, as a rule, only by those who have had laboratory experience. The tendency of the clinician is to attach to them much more importance than they deserve. It is not our desire to belittle in any way the value of the laboratory to the clinician but to emphasize that laboratory reports can attain their greatest value only when intelligently correlated with the information obtained by the clinician himself. The laboratory worker must impress this fact upon the clinician, not baldly but with suggestions designed to help in the solution of the clinical prob-

lem. It is by such aid that the "professional" laboratories may be expected to demonstrate their superiority over the "commercial" laboratories. But further, the laboratory worker must see to it that all procedures are carried out in his laboratory with the care that their importance demands. Careless work here will result in error even more quickly than at the bedside. It is conceivable that confusion of specimens may occur in even the most carefully managed laboratories, but it should be exceedingly rare. In every case in which the result of the test does not conform to the clinical expectation, the laboratory must hold itself obligated to repeat the examination in order to confirm the result. We cannot believe that careless laboratories can continue for long. Sooner or later their sins will find them out and they will perish from lack of material.

So far as the technique of the Wassermann reaction is concerned there is great need of uniformity before the results obtained in different institutions can be considered comparable. Kolmer and his assistants have done pioneer work in this field and have published a number of studies designed to determine the best procedures in each step of the test. They have evolved a technique based upon these studies, one which is not a short-cut to rapid reports but most carefully considered in all of its details. It is now being tried out in a number of different laboratories to determine whether it is worthy of becoming a standard technique for general use. Whether the method finally adopted be Kolmer's or that of some other worker we must eventually adhere to some uniform method if we are to enable the clinician to expect uniform results. But, above all, it must be emphasized that the Wassermann reaction is not a "test for syphilis." A positive test is *one* of the symptoms of syphilis, perhaps one of the most constant symptoms, but the physician who insists on considering it a pathognomonic symptom is not treating his patients fairly. There is no royal road to success in medicine any more than in other callings. Hard work and the intelligent use of all of the tools at his command are still essential elements in attaining real success.

The Prognosis of Influenza Bronchopneumonia.

In influenza epidemics it is often very difficult to make a certain prognosis for the bronchopneumonias. To remedy this deficiency one can only note the agreement of certain finds with the issue of the case. One may use for this purpose a variety of data, as the area of dullness, rales, and bronchial breathing; the temperature, pulse, and respiration; the presence of unilateral or bilateral symptoms and so on. In such a research the conclusions apply only to the complications of influenza and not to ordinary pneumonia. Dr. Bié of Copenhagen publishes a study of this sort in the *Acta Medica Scandinavica* for Dec. 5, 1921, lv, 6, in which over 1000 cases of influenzal bronchopneumonia are analyzed. The total number of deaths was 234. This large loss of life was due in some degree to the fact that many of the women were pregnant, for the death rate is 2½ times as great in the gravid. There were also 55 patients with heart disease in which the case mortality was very heavy. It is, of course, necessary to leave the gravid and cardiac patient out of the statistics. A toxic factor, as shown by the presence of jaundice, albuminuria, and the behavior of the temperature, pulse, and respiration, means a bad prognosis, but it is not always easy to isolate these cases by the temperature, etc. Thus it is easy to make a good prognosis from an improvement in the pulse and temperature, but not so simple a matter to make a bad prognosis if these seem unfavorable. Half of those who breathed 34 and upward on admission died, while if the breathing was below 34 recovery was the usual outcome. This difference was not dependent on whether the pneumonia was single or double, but inhered in each form, although naturally *per se* the prognosis is much better for single pneumonia. In all pneumonias with respiration above 40 on admission the prognosis is grave, and the more rapid the breathing the worse the outlook.

The Remote Mortality of Epidemic Encephalitis

There is as yet not much literature upon this subject, although a large body of facts has been assembled on the sequelæ of this affection. The prognosis for recovery *quoad vitam* after the danger has passed is generally regarded as good. None of the sequelæ, such as neurasthenia, pseudo-Parkinson's disease, organic dementia, psychoses, paralyses, etc., appears to be straightway fatal. It is therefore of interest to read the report in the *Revue médicale de la Suisse romande* for December, 1921, xli, 12, by Repond, of two late fatalities attributable directly to the disease, which agree so closely among themselves that the author reports but one of them. The patient was a man of 67 who went through two attacks of grip, in 1918 and 1919 respectively. In both instances the malady was accompanied by somnolence which was much less marked the second time. The man was not right mentally after this last experience and exhibited somnolence, torpor, headache, pareses, and visual hallucinations without insight into their falsity. The condition was at first progressive and differed from ordinary acute encephalitis in the absence of fever and prostration. This state of affairs, which persisted for two months and then disappeared spontaneously, is, of course, to be regarded as an immediate sequela. The reappearance of the syndrome was two years later, when he was stricken suddenly, and in a few days was delirious, dying on the fifth day. Autopsy appeared to show that the late recurrence of cerebral symptoms with fatal outcome was due to the anatomical evolution of small foci of encephalitis which had led after two years of relative health to destructive alterations.

News of the Week.

Yellow Fever in Vera Cruz.—The Health Department of Mexico City denies the alarming reports on the yellow fever situation in the State of Vera Cruz which have appeared in the daily press. Few fever cases exist. The Health Department has a number of doctors and nurses in the State of Vera Cruz studying the situation.

which is regarded as very favorable. It is thought that reports of a slight increase in malaria in the coast countries, where the disease is always prevalent, have probably been misunderstood.

Influenzal Pneumonia in New York.—According to statements given out by the New York Health Department, 366 cases of influenza were reported on January 26 and 203 on the following day. During the week preceding this date the number of cases of influenza reported to the Health Department increased daily. Health Commissioner Copeland makes the statement that he thinks the city is suffering from a mild epidemic of pneumonia rather than of influenza, and advises the use of a new pneumonia vaccine which Dr. William H. Park has produced at the Department Laboratories. Dr. Copeland states that this vaccine was tried on policemen in the influenza recurrence of 1919 and on the inmates of prisons and other institutions. The laboratory of the Health Department is making the vaccine in considerable quantities and arrangements are under way for its distribution to private physicians. For the benefit of those who cannot afford the services of a private physician such vaccines will be given at public dispensaries.

England and Wales Have Healthiest Year.—Last year was the healthiest on record in England and Wales, according to the Register-General's provisional figures. The death rate was only 12.1 a thousand. The birth rate, however, was less satisfactory, being 22.4, the lowest recorded, except for the war years. The infant death rate was 83 a thousand, the lowest of any year except 1920.

Metropolitan Life Reports Fall in Mortality Rates.—In an address delivered on Jan. 27 before the company's managers from all over this country and Canada, President Haley Fiske of the Metropolitan Life Insurance Company stated that the mortality for the year 1921 had fallen off 13.7 per cent. from that of 1920. The decrease in deaths from influenza was shown to have been 83 per cent., from pneumonia, 37.3 per cent.; from influenza and pneumonia combined, 52.9 per cent.; from typhoid fever, 1.5 per cent.; from measles, 63.5 per cent.; from whooping cough, 40.9 per cent.; from tuberculosis, 16.5 per cent.; from Bright's disease, 5.8 per cent; from diseases of the heart, 1.7 per cent., and from diseases relating to child bearing, 15.2 per cent. There were increases during the year in deaths as follows: From scarlet fever, 15 per cent.; from diphtheria, 5.4 per cent.; from suicide, 23 per cent., and from homicide, 13.8 per cent. Industrial mortality figures for 1921, compared with a like period of one decade ago, show an improvement which, measured in terms of lives, means the saving of 55,000 lives. The health work done by the company among its policyholders was considerably extended. More than 25,000,000 health pamphlets and leaflets were distributed during the year, and the company's nurses made 2,136,000 visits to sick industrial policyholders.

Scarlet Fever Closes Tenafly Schools.—The closing of the public schools for an indefinite period and the barring of all children under 16 from motion picture shows because of the prevalence of scarlatina was determined upon at a meeting of the Board of Health of Tenafly, N. J., on Jan. 23.

Federal Act Planned to Check Drug Evil.—At a conference held recently at the Health Department, attended by New York City and County officials, it was the consensus of opinion that the increase in the use of narcotic drugs in this city and State will be prevented only by the Federal Government putting a limit on the importation of habit-forming opiates which reach this country through legitimate routes or smuggling channels. Chief City Magistrate William McAdoo, Dr. James A. Hamilton, Commissioner of Correction, Bird S. Coler, Commissioner of Public Welfare, and Dr. Copeland were appointed a committee to draft a proposed amendment to the Federal drug law to be introduced in Congress in the near future. It will be recommended in the proposed amendment that the Federal Government take over the manufacture of habit-forming drugs and distribute them through the Public Health Service. Illegal handling of narcotics will involve a severe jail penalty.

Assembly Advances Hospital Bill.—The measure designed to provide that the State Hospital for the treatment of discharged soldiers suffering from mental diseases shall be open to the care and treatment of all persons and shall be known as the Brooklyn State Hospital, Creedmore Division, was advanced to the order of final passage in the Assembly on Jan. 24.

New Buildings for Medical School.—An offer by Samuel Mather of Cleveland to pay for the construction of new medical school buildings has been accepted by the trustees of the Western Reserve University. The present estimate places the cost of these buildings at $2,500,000. This gift, together with previous ones, will make Mr. Mather's endowments to the university total more than $4,000,000.

Offer of $100,000 for Cancer Cure.—An offer of $100,000 "to the graduate or student of any recognized university who within five years after date is the first to discover a medicinal treatment for the effective cure of cancer" was made recently by Lord Atholstan, proprietor of the Montreal *Star*. The decision is to be made by the Royal College of Physicians and Surgeons, London, England. The offer, which was made "to help in stimulating the work of research throughout the world," may be renewed.

Public Health Clinic for Ohio Town.—A public health clinic has been established in East Liverpool, Ohio, under the direction of the Board of Health. Funds to meet the cost of conducting the work have been raised through the efforts of the Chamber of Commerce and the Trades and Labor Council, cooperating with labor unions, merchants, and manufacturers.

An Official Organ of the County Medical Society.—The first issue of *The New York Medical Week*, the official organ of the Medical Society of the County of New York, published under the supervision of the Committee on Civic Policy, made its appearance on Jan. 21, 1922. Its aim is to supply a news medium for the medical activities of New York—announcement of medical society meetings, hospital and medical school news, legislative bills

and comments thereon, etc. In their salutatory the sponsors of the publication state that it is their aim to represent the profession truly. They say: "To that end we have established a 'Public Forum,' and it is our hope that here in the general expression of opinion and discussion of conflicting views we may determine the sentiment of the body we represent. Our readers are cordially invited to send their contributions for publication in this column." If this offer has no string to it we look for some interesting correspondence in this new publication, which will carry no scientific or technical articles.

Hospital Notes.—Plans for remodeling the Bronx Hospital for the treatment of ex-service men have been approved by the Treasury Department and it is hoped to have the hospital ready for occupancy by March 15, 1922. There will be 1800 beds and the remodeling will cost approximately $700,000. The hospital will be for the treatment of general cases.

Roosevelt Hospital, New York, is to have an eight-story addition to its building at Fifty-ninth Street and Ninth Avenue. The estimated cost of the new structure is $1,000,000.

A new soldiers' hospital, to cost over $1,000,000, is in the process of construction in Milwaukee, Wis. The new institution will include eight buildings and will accommodate 700 patients.

Two valuable lots in Hot Springs, Ark., have been given by the United States Government to the Leon Levi Memorial Hospital to be used as a site for additional hospital buildings. The hospital is to be maintained by the B'Nai B'Rith Society.

Work has been begun on the new $400,000 private ward of the New Haven (Conn.) Hospital. It is expected that the building will be completed in the course of a year, when it will be one of the most modernly equipped private wards in the country.

The Southeast Arkansas Hospital Association plans to build a $100,000 hospital representing five or six southeastern Arkansas counties. The town of Crossett has offered a building site free in order to secure the new edifice.

The North Carolina Baptist Hospital Commission had prepared plans and specifications for a hospital to cost approximately $150,000. The institution is to be located at Winston-Salem and it is expected that the building will be ready for occupancy by December 1, 1922.

First Child Welfare Building Opens.—The Board of Child Welfare has opened its administration building at 145 Worth Street, New York. The board is now caring for 25,000 children and 7500 mothers, at a cost of $4,000,000 annually, its aim being to keep the children in homes is as far as is compatible with their best interests. The plan of caring for dependent children in their homes whenever possible has been shown to be not only a great saving financially, but has also brought other advantages over the old institutional method. Children under the care of the board have been practically eliminated from the Children's Court, the Society for the Prevention of Cruelty to Children, and the Police Department, to say nothing of hospitals and sanatoriums.

Retirement of Professor Darier From Hospital Practice.—This distinguished dermatologist is the third Parisian practitioner to be retired recently from hospital service by reason of the age limit, the others being Brocq and Thibièrge. On the occasion of his departure from the Hôpital Saint-Louis Dariér's pupils and friends honored him with a medal and bust, the work of distinguished artists, both physicians—Professor Richer and Dr. Sabouraud. The ceremony took place in the historical hall of the hospital museum. Professor Darier pronounced an allocution of a moving character in which all of his characteristic qualities of modesty, benevolence, gentle irony, and kindness were reflected.

Dr. A. B. Musa of Webster, N. Y., is ill with typhus fever at Orenburg, Russia, where he has been engaged in Russian relief work.

Dr. C. N. Sisk of Athens, Ga., has accepted the position of public health officer of Winston-Salem, N. C., and will enter upon the duties of the office immediately.

Dr. D. T. McCall has been named president of the Mobile County Board of Health.

Dr. Albert Robin has been reelected chairman of the medical board of the Physicians' and Surgeons' Hospital of Wilmington, Del.

Dr. Florence L. McKay, recently Assistant Director, Division of Child Hygiene, Children's Bureau, U. S. Department of Labor, has been appointed Director of the Division of Child Hygiene, New York State Department of Health.

Medical Society Elections.—THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK, at its meeting held January 16, 1922, elected the following officers for the ensuing year: *President*, Dr. George L. Brodhead; *Recording Secretary*, Dr. E. E. Smith; *Chairman for Borough of Brooklyn*, Dr. Robert E. Coughlin; *Chairman for Borough of Richmond*, Dr. William Bryan.

THE DUTCHESS COUNTY MEDICAL SOCIETY, at its meeting held in Poughkeepsie, N. Y., Jan. 11, 1922, elected the following officers for the ensuing year: *President*, Dr. Joseph Vigeantz, Red Hook; *Vice-President*, Dr. Charles Lane; *Secretary and Treasurer*, Dr. H. P. Carpenter; *Associate Secretary*, Dr. Aaron Sobel.

THE ONEIDA COUNTY MEDICAL SOCIETY, at its annual meeing held in Utica, N. Y., Jan. 10, 1922, elected the following officers for the ensuing year: *President*, Dr. Andrew Sloan; *Vice-President*, Dr. D. H. Roberts; *Secretary*, Dr. William Hale, Jr.; *Treasurer*, Dr. Hyzer Jones; *Librarian*, Dr. T. Wood Clarke.

THE MONTGOMERY (ALA.) MEDICAL SOCIETY, at its regular meeting on Jan. 14, 1922, elected the following officers for the ensuing year: *President*, S. D. Suggs; *Vice-President*, Dr. Virgil Dark; *Secretary*, Dr. Fred Reynols; *Treasurer*, Dr. F. C. Stevenson; *Censor*, Dr. Fred Wilkerson.

THE GLENDALE (CAL.) PHYSICIAN'S CLUB recently elected the following officers for the ensuing year: *President*, Dr. G. H. Westphal; *Vice-President*, Dr. Laura Brown; *Secretary*, Dr. Henry Harrower.

THE WASHINGTON COUNTY (ARK.) MEDICAL SOCIETY, at its annual meeting held at Fayette, Jan. 6, 1922, elected the following officers for the ensuing year: *President*, Dr. Charles R. Swift,

Elkins; *Vice-President*, Dr. J. S. Cannon, West Fork; *Secretary*, Dr. F. R. Morrow, Fayetteville; *Treasurer*, Dr. J. R. Southworth, Fayetteville.

THE SEBASTIAN COUNTY MEDICAL ASSOCIATION, at its annual meeting held at Fort Smith, Ark., elected the following officers for the ensuing year: *President*, Dr. A. F. Hoge; *Vice-President*, Dr. Everett Moulton; *Secretary*, Dr. W. R. Booksher, Jr.; *Treasurer*, Dr. H. H. Smith.

Obituary Notes.—Dr. MARCUS J. LEVITT of Brooklyn, N. Y., a graduate of Baltimore University School of Medicine in 1900, and attending aphthalmologist to the Jewish Hospital, died of meningitis in that institution on January 25, at the age of forty-four years. He was also ophthalmologist to the East New York Dispensary and the Jewish Orphan Asylum.

Dr. WARD BEECHER WHITCOMBE, a graduate of New York University Medical College in 1899, died from blood poisoning on Jan. 10, at the age of sixty-four years.

Dr. WILLIAM HENRY RODGERS of Pittsburgh, Pa., a graduate of Jefferson Medical College in Philadelphia, in 1903 and a veteran of the Spanish-American War, died of pneumonia on Jan. 13, at the age of forty-three years.

Dr. JOHN E. PERRY, a graduate of the College of Physicians and Surgeons, Columbia University, in 1873, died at his home in Wakefield, R. I., on Jan. 5, at the age of seventy-three years.

Dr. GILES ANDREW FIKE of Dundaff, Pa., a graduate of Jefferson Medical College, Philadelphia, in 1876, died in a local hospital on Jan. 6.

Dr. JOHN CHRISTOPHER O'CONNOR of Manchester, N. H., a graduate of Bowdoin Medical College in 1905, died on Jan. 6, at the age of forty-three years.

Dr. WILLIAM GLEN ALLAN, retired, died at his home, Glen Allan, near Greenville, Miss., on Jan. 12, at the age of eighty-one years. He was a surgeon in the Confederate Army, and later served as county health officer of Washington County and as a member of the County Pension Board.

Dr. GEORGE ALVIN HILL died at Merion, Pa., on January 23 at the age of sixty-nine years. He was graduated from the medical department of the University of Pennsylvania in the class of 1874. He was a member of the Philadelphia County Medical Society, the Medical Society of Pennsylvania, and the American Medical Association.

Service Bureau.

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Correspondence.

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, Jan. 12, 1922.

Tenth International Congress of Otology.—The Tenth International Congress of Otology will be held in Paris from July 19 to July 22, 1922, under the patronage of M. Bernard, Minister of Education, and will be presided over by Prof. Pierre Sebileau. Although styled a Congress of Otology, this will be practically one of oto-rhino-laryngology, as the proceedings will cover subjects of interest to those specializing in affections of the ear, nose, and throat. The mornings will be devoted to visiting (under the direction of doctors and interpreters) various hospitals where may be seen oto-rhino-laryngological operations, clinics, and pathological specimens, and also surgery of the head and neck. An exhibition of instruments and anatomical and pathological preparations will be organized at the Faculty of Medicine during the Congress. All communications should be addressed to the General Secretary of the Congress, Dr. A. Hautant, 28 rue Marbeuf VIII, Paris.

Influenza in Great Britain.—Influenza has been prevalent in several of the large towns of Great Britain and especially in London. The disease has been of a mild type and there are some indications that it is subsiding. Steps have been taken by the Ministry of Health to secure special intelligence regarding influenza throughout the country, not merely through the usual channels, but from large employers of labor, and the whole situation is constantly under review, officers with special knowledge being dispatched at once to the scene of outbreak. Speaking generally, the present epidemic has been mild, so much so that hundreds have carried on as usual and have been unaware of slight attacks until they had practically passed. An official of the Ministry of Health, in an interview given to the daily press, said that the epidemic was of a mild type. Deaths in the ninety-six great towns in the week ending Jan. 7, which numbered 418, did not much exceed those of the worst week in the 1920 recrudescence, while the number of cases of pneumonia was very much smaller. Another hopeful feature of the present situation is the comparatively small proportion of deaths in the prime of life, say, at 25 to 45. In the case of the pandemic of 1918 no less than 40 per cent. of the deaths in the autumn were of persons aged from 25 to 45, and in the summer as many as 36 per cent. In the spring of 1920, 35 per cent. of the deaths were in the same age group. In the last two weeks of December 22 per cent. and 26 per cent. respectively of the deaths from influenza were at the age of 25 to 45, a very much smaller proportion. In Sheffield, Rotherham, and some other towns chiefly affected, the disease appeared to be of a mild three-day type—sore throat and severe catarrh, accompanied by discomforts in the nose, have been common. These nasal infections probably account for the neuralgia, persistent cough, and the frequent relapses which are observed in some cases. A large number of patients have had a severe and persistent paralysis

of the lumbar muscles. In some districts this feature has been so marked that an apparent epidemic of lumbago has occurred. At the time of writing, Newcastle-on-Tyne is suffering badly from the epidemic, and business is seriously handicapped. The railway and tramway service is gravely affected. In South Wales 1,000 cases of influenza are reported, and it is stated that the complaint is spreading rapidly.

Sir Sydney Russell Wells a Candidate for Parliament.—As Sir Philip Magnus, who has represented the University of London in Parliament for several years, has intimated that he will not offer himself for re-election another candidate had to be chosen. At a general meeting of the University of London Unionist Association, held last week, Sir Sydney Russell Wells was unanimously selected as a candidate in the Conservative and Unionist interests at the next general election. Sir Sydney Russell Wells is a very distinguished physician and an authority on heart disease who has been vice-chancellor of the university since 1919. He is 53 years of age. He represents the university on the General Medical Council. No better candidate could have been chosen, and it would be a graceful act on the part of the university in recognition of his great devotion to its interests if he were elected without contest.

Section of Surgery, Royal Society of Medicine.—At a meeting of this section, held on Jan. 4 last, Mr. J. P. Lockhart-Mummery read a paper on postoperative embolism and infarction. He said that such cases were divisible into three categories: (1) Those in which death occurred instantaneously, without premonitory symptoms; (2) those with a fatality a few minutes or a few hours after an acute and sudden crisis, followed by dyspnea and pain in the chest; (3) cases in which the patient developed signs of consolidation in the lung following a crisis and recovered. The second class were the more usual cases and here the initial symptoms were acute pain in the chest accompanied by dyspnea. The dyspnea was not due to part of the lung being put out of action, but to the sequential heart strain owing to the limitation of the area of the pulmonary circulation. He, therefore, reasoned that the giving of strychnine in such an event was wrong practice; such stimulants tended to enhance the difficulty of an already strained heart. Effort should rather be directed to relieving the pressure in front of the heart by dilating the vessels there by such substances as nitrite of amyl. After reviewing the pathology, he said that he had arrived at the conclusion that considerable venous stasis was a necessary factor in postoperative thrombosis, but not the only one, as mere recumbency did not suffice to produce it. John Hunter proved that intravascular clotting did not follow the intravenous injection of thrombins, which aided blood coagulation if the blood was in movement. To produce clotting, thrombokinase must be present in the blood. This substance was not found normally in the blood, but was in all the other body tissues, and when a wound was made it was liberated and allowed to enter the blood stream. It sealed up a vessel after a cut had been made into it. Calcium introduced into the blood did not cause it to clot; the amount of that substance normally in the blood was all that was required, therefore any addition to it would decrease its tendency to clot. For thrombosis to occur there must be venous stasis and the presence of thrombokinase; neither alone would bring it about. Therefore, the clot in thrombosis probably formed at the time of the operation or immediately after, and at any period up to some weeks afterward a portion might become detached and cause embolism. Prevention should be the great aim, as when once set up the condition did not lend itself to treatment. The only chance of preventing postoperative thrombosis at present seemed to be by preventing any stasis in branches of the vena cava. Injection of morphine seemed to precipitate it by slowing the circulation, and the more frequent use of morphine in recent years might have something to do with the increase in these accidents. He advocated the doing away with preliminary purgation in operative cases or else confined to six days or more before the operation, and starvation before operation should be entirely discontinued.

Obituary.—A Great British pathologist has passed away recently in the person of Sir German Sims Woodhead, Professor of Pathology in the University of Cambridge. In America, perhaps, Woodhead will be remembered chiefly as the author of a report to a Royal Commission on Tuberculosis, for which he was an investigator. It was shown that bovine tuberculosis can be transmitted to man. In 1892 he was elected Honorary Fellow of the Henry Phipps Institute, Philadelphia, and in 1893 he attended the sixth International Congress on Tuberculosis at Washington, where he exhibited a collection of specimens showing the changes produced by tuberculosis in various organs, both in human and animal subjects. For the collection he was awarded a gold medal by the Congress. In my next letter I shall give some intimate recollections of the late Sir German Woodhead given me by Mrs. Greenfield, the widow of the late celebrated Professor of Pathology at Edinburgh University, whose pupil and assistant Woodhead was, and who was, moreover, a close friend of Prof. Greenfield and family.

Progress of Medical Science.

Boston Medical and Surgical Journal.

January 19, 1922, clxxxvi, 3.

1. Observations on the Operative Treatment of Epilepsy, with a Report of Fourteen Cases. John Mason Little.
2. Pyorrhea an Ancient Disease. Carolus M. Cobb.
3. General Physiology in Its Relation to the Problem of New Growths. Frederick H. Pratt.

1. Observations on the Operative Treatment of Epilepsy, with a Report of Fourteen Cases.—John Mason Little takes exception to a paper which has recently appeared criticising the operative treatment of epilepsy, asserts that the benefit sometimes derived from operation has been observed and recorded for a long time, and gives the history of fourteen cases of epilepsy which he has treated by operations on the head. In addition 81 cases are culled from the literature dating back to 1906, making in all 95 cases of epilepsy of all kinds in which some form of operation has given beneficial results in a majority of the cases, and a so-called cure after a considerable interval in a certain percentage. If the cases are excluded in which either extirpation of the cortical center or of tumor was

done the mortality is not high. Little feels that in his cases the operation did no harm. Without exception there was temporary improvement. Some were improved over considerably extended periods of time and there are three which can be called cures over eleven and a half, eleven years and five months, and ten years. Three are relieved and living useful happy lives, nine, six and five years after operation. Some local pathological condition was present in most cases. While not wishing to start the surgeon on a career of indiscriminate operating for epilepsy, Little believes that there is indication that in some cases operation is beneficial.

2. Pyorrhea an Ancient Disease.—Carolus M. Cobb quotes from "Keith's Antiquity of Man" and refers to the LaChapelle man, who is believed to have lived one hundred thousand years ago, to show that pyorrhea is by no means a modern disease. He believes that a disease that began so early and has persisted so long must have a definite cause. The two factors which are common to all the stages of man's development are, first, the teeth have been continuously less used, and have grown smaller and, second, infection. Diet, lack of fresh vegetables, changes in the secretion of the mouth do not explain a disease that has lasted so long. The problem of treatment seems to be the treatment of recurring infection in an organ that is becoming useless. Nature makes no effort to save an organ that is becoming useless or nearly so. If we wish to save our teeth we must bear in mind that they are being less and less used, and that unused or little used organs are prone to infection.

New York Medical Journal.

January 18, 1922, cxv, 2.

1. The Position of Medicine at the Beginning of the Twentieth Century Illustrated by the State of Cardiology. James Mackenzie.
2. Prognosis in Heart Disease. R. Oswald Moon.
3. Syphilis of the Medium and Smaller Arteries. Aldred Scott Warthin.
4. Etiology and Treatment of High Blood Pressure, Arterial Hypertension and Arteriosclerosis. George Edward Barnes.
5. The Place of Electrocardiography. Louis Faugères Bishop.
6. Death of the Heart in Diphtheria. S. Calvin Smith.
7. The Neurotic Element in Organic Cardiovascular Disease. S. Neuhof.
8. The Significance of Variation in the Quality of Heart Sounds. Frank Bethel Cross.
9. The Prevention of Arterial Disease. Harlow Brooks.
10. The Importance of Posture in the Physical Examination of the Heart. W. Gordon.
11. Aortic Incompetence. A. E. Renner.
12. Tumors of the Heart. Hyman Goldstein.

3. Syphilis of the Medium and Smaller Arteries.—Aldred Scott Warthin finds that simple arteriosclerosis (hyaline thickening of the intima) of the medium and smaller arteries is more common in syphilitics than in nonsyphilitics. It is probably not due to the localization of spirochetes in the intima, but is of secondary origin (toxic or mechanical). Syphilitic periarteritis, panarteritis and arteritis obliterans of the smaller arteries occur in all cases of chronic and latent syphilis, in greater or less degree. Syphilitic mesaortitis is essentially a disease of the arterial vasa vasorum. Syphilitic lesions of the smaller arteries are always associated with localization of the infection in any organ or tissue. The lesions are rarely gummatous in character. Syphilitic mesarteritis occurs in the carotids, subclavians, iliacs, femorals, tibial and pulmonary arteries. It is usually of slight degree, and is found only on microscopical examination. Occasionally it expresses itself clinically as aneurysm of these arteries, or in circulatory disturbances due to obstruction of the arterial lumen. Syphilitic obliteration of the pulmonary arteries may lead to the production of Ayerza's disease (chronic cyanosis, polycythemia and splenomegaly). Clinical syphilis of the peripheral arteries of the extremities is more common in the legs and feet, manifesting itself in gangrene, perforating ulcer, sclerosing atrophy, or symmetrical gangrene simulating Raynaud's disease. Syphilitic arteritis may be a cause of peptic ulcer, or pemphigus, localized ulcers, atrophy and various forms of dystrophy, due to disturbed circulation, as the result of partial or complete obstruction of the lumen of the affected artery. Syphilis of the smaller arteries plays a very important part in paresis, tabes, and cerebrospinal syphilis, and in the production of localized degenerations of brain and cord. Syphilis of the coronary arteries is also of clinical importance. In general, it may be stated that localized syphilis of the smallest arterioles is an essential part of the general pathology of chronic or latent syphilis.

10. The Importance of Posture in the Physical Examination of the Heart.—W. Gordon asserts that no cardiac patient has been properly examined who has not been examined, when possible, both in the erect and recumbent positions; and no descriptions of cardiac physical signs can be considered scientific in which the posture of the patient at the time of observation has not been stated. The change from the erect posture to the recumbent produces the following results: (1) Raises and narrows the normal cardiac dulness. (2) Makes the first sound duller and the second sound sharper, so producing the classic "lub-dub." (3) Lessens the anteroposterior diameter of the chest. (4) Almost always markedly narrows the dulness of an enlarged heart, particularly rightwards. (5) Increases the loudness and area of audibility of: (a) Hemic murmurs, both at apex and base, apparently always. (b) Mitral and tricuspid regurgitant murmurs, almost always. (c) Aortic forward murmurs, usually. Some of these murmurs, a, b, and c, may only be audible in the recumbent posture. (6) Lessens the loudness and area of audibility of: (a) The venous hum in the neck in anemia, apparently always. (b) The presystolic murmur of mitral stenosis, usually. (c) The so-called cardiopulmonary or respiratory murmur, usually. Some of these murmurs, a, b, and c, may only be audible in the erect posture. (7) Leaves almost unaffected the murmur of aortic regurgitation. (8) Increases the loudness of the accentuated pulmonary second sound. (9) Makes more marked the reduplication of the reduplicated pulmonary second sound, apparently always. In some cases the reduplication is only heard in the recumbent posture. (10) Causes the partial or complete disappearance of the cardiac dulness in certain cases of cancer (the cardiac sign in cancer.) (11) Causes the apex beat to rise an interspace in some cases of much enlarged heart, or (much rarer) of normal-sized hearts, with abnormally lax supports (cases of cardioptosis). (12) Narrows the dulness of pericardial effusion and resonance in hydropneumopericardium. (13) Changes the distribution of pericardial dulness. (14) Sometimes makes audible a friction sound in pericarditis, not heard in the erect position. (15) Increases the distance at which a distantly heard first sound is audible, as in Graves' disease. In lung diseases the double stethoscope is indispensable, because it can penetrate further than the wooden one and can pick up adventitious sounds which would be missed without it. A double stethoscope helps to determine the presence of mitral systolic murmurs too faint to be sure of with the wooden stethoscope. But (a fact not to be forgotten) a slight aortic regurgitant murmur, distinct to the wooden stethoscope, may actually be inaudible to the double stethoscope. There are some very faint aortic regurgitant murmurs which can only be made sure of by the ear laid directly on the chest.

Journal of the American Medical Association.

January 21, 1922, lxxviii, 3.

1. The Prevention of the Development of Rickets in Rats by Sunlight; Studies on Experimental Rickets; xiv. G. F. Powers, E. A. Park, P. G. Shipley, E. V. McCollum and Nina Simmonds.
2. Purpura Fulminans During Convalescence from Scarlet Fever. Guthrie McConnell and Harry L. Weaver.
3. A Report of Four Recent Cases of Thoracoplasty. A. G. Shortle and W. A. Gekler.
4. Injection of the Bile Ducts with Bismuth Paste, and Observations on the Flow of Bile. Charles F. Tenney and S. H. Patterson.
5. Heavy Breasts as a Factor in the Production of Faulty Posture. C. L. Lowman.
6. The Convulsive Disorders of Childhood. John Lovett Morse.
7. Giardiasis. Caroline McGill.
8. A Case of True Pneumotyphus. H. C. Herman.
9. The Ovary and the Endocrinologist. Robert T. Frank.
10. The Rôle of Trauma in Lesions of Syphilis, with Particular Reference to the Hereditary Type. I. Harrison Tumpeer.

11. Tender Pressure Points with So-Called Symptomless Gallstones. G. A. Friedman.
12. Fighting Diphtheria in the Country. Harvey B. Bashore.
13. Meningococcus Meningitis with Basal Blockage. Joseph H. Bainton.
14. A Simple Apparatus for Accurate Intravenous Administration of Glucose Solutions. William Thalhimer.
15. A New Device for the More Universal Use of the Electric Bone Saw. Ellery M. Hetherington.
16. Method of Making Lantern Slides from Roentgen Ray Negatives. C. E. and C. C. Collins.
17. A simple method of Staining Gram Negative Organisms. Ruth Tunnicliff.
18. Report of a Case of Ruptured Uterus Resulting from the Use of Pituitary Extract.

1. The Prevention of the Development of Rickets in Rats by Sunlight.—G. F. Powers, E. A. Park, P. G. Shipley, E. V. McCollum and Nina Simmonds present this experimental study, the object of which was to determine whether or not sunlight prevents the development of rickets in the rat. A diet was employed which at room light regularly gives rise to a disease in its essential features identical with rickets as seen in human beings. The diet was high in calcium, low in phosphorus, and was insufficiently supplied with fat-soluble A. In other respects it was well constituted. Eighteen rats were placed on the diet. Twelve were exposed to sunlight for a total of 242 hours over a period of sixty-two days. Six were kept under conditions of ordinary room light as control animals. The control rats, killed with ether at the end of sixty days, all showed rickets. The rats exposed to sunlight remained without exception entirely free from rickets. The absence of the lesions of rickets was confirmed by histological examination. The beneficial effect of the sun's rays was not limited to the skeleton, since the condition of the animals underwent a general improvement under the influence of the treatment with sunlight. The exposure to the sun's rays, however, did not entirely compensate for the defects in the diet. The animals remained undersized; the bones though completely calcified remained thin. The writers think it is necessary to conclude that the sunlight in some way raises the efficiency of the body cells. It enables the organism to put into operation regulatory mechanisms which otherwise would have been inoperative or ineffectual. The effects of sunlight and of cod liver oil on the growth and calcification of the skeleton and on the animal as a whole seem to be similar if not identical.

4. Injection of the Bile Ducts with Bismuth Paste, and Observations on the Flow of Bile.—Charles F. Tenney and S. H. Patterson report the case of a man 48 years of age who, following cholecystectomy and the removal of stone from the neck of the gall bladder, made an uneventful recovery except for a biliary fistula. In order to determine the extent of the fistulous tract and its relations to the duodenum, the duodenal tube was passed, and a small amount of milk containing barium was injected into the tube to make clear its outline. At the same time bismuth paste was injected into the external opening of the fistula. A roentgenogram taken immediately after showed the liver ducts extensively injected with bismuth paste. The patient developed jaundice, a rise in temperature and the urine was dark colored and contained a considerable quantity of bile. The mechanical obstruction to the liver lasted about forty-eight hours, after which the patient recovered. Being definitely convinced that no bile was passing into the intestinal canal, a twenty-four hour specimen of bile was collected, and the quantity and rate of flow by various stimuli were estimated. It was found that magnesium sulphate did not increase the rate of flow of the bile, nor did it change in color or consistency, leading one to believe that in other individuals in whom the duodenal tube is used and the bile changes in color and consistency, magnesium sulphate acts only as a stimulant to contractions of the gall-bladder and causes dilatation of the ampulla of Vater, and not as a direct stimulant to the liver, except as the bile in duodenum increases it. The greatest quantity of bile was secreted in the third and fourth hours after meals. Psychic tests showed no immediate change in the flow of bile. One may get normal bile by the use of the duodental tube for diagnostic purposes, even though the patient may have a badly diseased gall-bladder. The entrance of bile into the duodenum definitely increased the flow of bile from the liver. Magnesium sulphate injected into the duodenum which had no connection with the liver, did not increase the flow of bile. Bile injected under the same conditions did increase the flow of bile.

9. The Ovary and the Endocrinologist.—Robert T. Frank refers to experimental work which shows that the corpus luteum contains lipoidal bodies which produce uterine hyperemia and rapid hyperplasia of the musculature and mucosa of this organ. Pharmacological researches show that the follicle as well as the corpus luteum can maintain the growth and nutrition of the uterus. In large dosage hypertrophy of the uterine muscle and mucosa take place. The external genitals and mammary glands are also stimulated. These reactions are specific. Decrease or increase in ovarian secretion can produce clinical symptoms. The present tendency, however, which seeks to include all menorrhagias and metrorrhagias in the functional group is fallacious. Bleeding may be due to systemic causes (heart and pulmonary and kidney diseases), to local inflammations (tubal), and to uterine neoplasms. Hence expert opinion, at times assisted by diagnostic curettage and microscopic examination of curettings, is more often needed than an endocrine prescription. The writer claims that to-day there is no better ovarian extract on the market than in 1910 when he first discussed this subject. The preparations are "defatted" and therefore deprived of such minute doses of the active principle as they may have originally contained. Pharmacologically they are inert. The near future may supply us with at least a partially potent lipoid extract. What is required is purification of the lipoid, a suitable bland menstruum and parenteral exhibition. The action of such an extract will be specific for the genital sphere.

11. Tender Pressure Points with So-Called Symptomless Gallstones.—G. A. Friedman emphasizes two points which he says, although not new, are often ignored in practice, namely: (1) that gallstones are often seemingly symptomless, and (2) that the correct diagnosis of this condition is possible. On pressure tender points in the intercostal spaces at the level of the gall-bladder, in the continuation of the right axillary, scapular, and posterior median line are almost always found in persons suffering from disease of the gall-bladder, even when tenderness in the gall-bladder region cannot be elicited. The presence of these spots is nearly as characteristic as the history in the group of so-called typical cholelithiasis. The writer has been able many times correctly to diagnose cholecystitis as a concomitant condition in otherwise clear cases of gastric ulcer or chronic appendicitis by finding the tender points. The existence of these tender points may be explained by the fact that the infective agent of the gall-bladder has a predilection to settle in small areas of intercostal nerves at the gall-bladder level.

The Lancet.

December 31, 1921, ccl, 5131.

1. Bradshaw Lecture on Subtropical Esculents. Michael C. Grabham.
2. The Use of Levulose as a Test for Hepatic Insufficiency. J. C. Spence and P. C. Brett.
3. On the Tuberculin Treatment of Bronchial Asthma and Hay Fever. W. Storm Van Leeuwen and H. Varekamp.
4. The Standardization of Suspensions of Red Blood Cells for Wassermann Tests. Joseph W. Bigger.
5. Serious Meningitis. A. Guerney Yates.
6. Studies in Milk. R. Stenhouse Williams.
7. A Case of Partial Pyloric Stenosis (Hypertrophic); Finney's Operation. R. P. Rowlands.
8. Loss of Reflex to Light Restored in Sleep. A. Garvie.

2. The Use of Levulose as a Test for Hepatic Insufficiency.—J. C. Spence and P. C. Brett describe investigations which lead them to conclude that a valuable indication of the efficiency of the liver can be obtained by estimating the changes in the blood sugar concentration, which follow the ingestion of levulose. In a healty adult with a normal liver efficiency, a dose of 50 grams of levulose will produce no appreciable rise in the blood sugar. In a subject with diminished liver efficiency a definite rise in blood sugar will result from the ingestion of levulose. The height and length of the "blood sugar curve" which portrays this rise will be in propor-

tion to the degree of liver inefficiency which is present. The test affords a means of estimating the degree of liver damage in cases of toxic salvarsan hepatitis and other diseases of the liver. The kidney threshhold for levulose is lower than that for glucose and varies in different individuals. The inconstancy of the threshhold for levulose renders the older method of testing liver efficiency by urinary examination inaccurate.

3. On the Tuberculin Treatment of Bronchial Asthma and Hay Fever.—W. Storm Van Leeuwen and H. Varekamp state that in the course of a research on the reactions of normal individuals and patients to intracutaneous injections of various diluted serums, carried out by Landsteiner and themselves, their attention was drawn to the fact that very often persons who show a strong skin reaction after serum injections also give a very marked tuberculin (Pirquet) reaction. This pointed to the possibility of a relationship between the intensity of the Pirquet reaction and the intensity of allergic reactions. With the knowledge that many cases of bronchial asthma must be considered as caused by allergic reactions, it was only a step further to suppose a similar relationship to exist between bronchial asthma and sensitiveness to tuberculin. Other considerations led to the same view. At length, of 34 cases of bronchial asthma which came under their care they started tuberculin treatment in 30 who gave positive Pirquet reaction. Koch's T. O. A. was given subcutaneously—mostly 1 c. c. of a 1:100,000 dilution—which gave no general reaction. The size of the dose was increased with each injection, provided the firmer dose produced no temperature. In nearly all the patients suffering from acute attacks of asthma these attacks disappeared for good after the first two or three injections of tuberculin. In addition the patients were also given protein-free diet and inhalations of benzyl-benzoate. It is not possible to state whether the cures obtained will be lasting. However, the first case in this series was treated fifteen months ago and the last two months ago and thus far there has been but one relapse. The writers do not explain why a hypersensitiveness to tuberculin increases the susceptibility for allergic reactions and why injections of small amounts of tuberculin have a curative effect. Research is being conducted on these points.

4. The Standardization of Suspensions of Red Blood Cells for Wassermann Tests.—Joseph W. Bigger proposes a method for the standardization of suspensions of red blood cells based upon the comparison of the color of the carboxylhemoglobin produced by treating the suspension of red cells with water and passing carbon monoxide gas with that of the standard tube of a clinical hemoglobinometer. The process of preparing this standard suspension is simple and takes only about ten minutes. The method has been tested and found to be accurate.

6. Studies in Milk.—R. Stenhouse Williams reports on some of the work carried out at the National Institute for Research in Dairying which has established certain important facts. First, that the best produced commercial milk can maintain a bacteriological standard of less than 10,000 colonies per 1 c.c. for at least twenty-four hours after milking, even under conditions of cooling and transit which exist in England at the present time. Second, that such milk retains its sweetness at room temperature for a period of time which averages 6.2 days in the winter months and 3.3 in the summer months. Third, that milk of a very high degree of cleanliness can be obtained in an average cowshed if the right worker be employed and be given light, water, steam, and a covered milking bucket. Fourth, that much of the contamination of milk is due to utensils. Fifth, the conditions necessary for the efficient sterilization of dairy utensils, whether by current steam or steam under pressure, have been established.

British Medical Journal.

December 31, 1921, 1, 3183.

1. A Post-Graduate Lecture on the Present Position of the Treatment of Carcinoma of the Cervix. William Fletcher Shaw.
2. The Radical Abdominal Operation for Carcinoma of the Cervix. Results of One Hundred Cases. Victor Bonney.
3. The Modern Operation for Cancer of the Breast. Russell Coombe.
4. Gonorrhea Treated by Electrolysis: Results in 500 Cases. Charles Russ.
5. The Treatment of Neglected Cases of Club-Foot. W. Paynter Noall.
6. Pigmentation of the Vermiform Appendix. E. M. Cowell.
7. Thrombosis of the Inferior Vena Cava: with Special Reference to Prognosis. Roy Russell Kerr.
8. Common Changes in Erythrocytes. Robert Craik.
9. A Case of Aneurysm of the Superficial Palmar Arch. E. O'G. Kirwan.
10. Varicocele in the Female. E. L. Rowse.

2. The Radical Abdominal Operation for Carcinoma of the Cervix.—Victor Bonney reviews the results based upon five years' freedom from recurrence. The operation performed has been the most thorough possible, for with the uterus and its appendages have been removed in all the cases the upper half or two-thirds of the vagina, the parametric and paravaginal tissue out to the pelvic side wall and down to the levatores ani and the glands in the obturator fossæ and along the iliac vessels. Every case was operated upon in which there appeared any chance, however small, of removing the growth. The results in this series of cases operated on by the writer between 1907 and 1915 and the first 100 cases operated upon by Comyns Berkeley and the writer between 1907 and 1911, of which operations the writer performed 49, are compared. There is a general similarity between the results of the present and those of the conjoint series, the principal difference being in the number of late recurrences. In both series the seat of early recurrence is usually in the vagina, of late recurrences higher up in the pelvis or abdomen. General cancerous metastasis practically never occurs, but recurrent growth may develop in the bony pelvis, or lumbosacral spine. The important fact is brought out that secondary carcinomatous deposit in the regional glands may exist at the time of the operation, and yet a good result be obtained and that carcinomatosis of the regional glands *per se* does not contraindicate the operation, and as it is impossible except by the microscope to be sure of the condition of the glands, their removal should be part of the routine of the operation in every case. A surgeon undertaking a series of operations performed after the manner that the writer has described elsewhere, may expect, if his operative mortality is the same as that of this series—namely, 20 per cent., that 25 per cent. of the patients originally presenting themselves for treatment unselected, 40 per cent. of those operated upon, and 50 per cent. of those recovering from the operation will be alive and well five years after the operation; he may expect that 5 per cent. of these will succumb from recurrence during the next two years, after which those surviving may practically be reckoned as cured. During this experience the operation mortality dropped from 20 per cent. in the first 100 joint cases to 6 per cent. in the last 50 cases jointly performed. This improvement is attributed to spinal anesthesia, the use of violet green to sterilize the vaginam suturing the vagina, and increased operative dexterity. Until some means of treating operable carcinoma of the cervix is found which will cure more than 35 per cent. of the patients surgical extirpation will remain the proper treatment for operable cases.

6. Pigmentation of the Vermiform Appendix.—E. M. Cowell finds the literature on this subject scant. He says that pigmentation of the appendix has hitherto been regarded as an uncommon condition. Attention having been drawn to it, surgeons will probably be surprised at its frequency. The first specimens were discovered by Mr. W. H. Battle and described by Professor S. G. Shattock in 1916. The condition may be regarded as secondary to changes in the big bowel associated with chronic intestinal stasis. The pigment cells contain melanin and fatty acid substance probably allied chemically to adrenaline. While the exact significance of the pigmentation is not yet clear, it appears constantly in cases of chronic intestinal stasis along with degenerative changes in Auerbach's plexus (associated with a defective mechanism), diminished activity of the intestinal mucosal cells, and lack of the usual protective mechanism against bacterial infection (McCarrison). It is probable that these changes are closely associated with avitaminosis,

since all the pathological conditions already mentioned have been produced experimentally in animals by appropriate diets (McCarrison). From the practical point of view the importance of this conception cannot be overestimated. Chronic intestinal stasis, chronic appendicitis, and many morbid conditions of the cecum may be prevented by the administration of a diet containing sufficient natural foodstuffs which are especially rich in vitamine B.

Indianapolis Medical Journal.

October, 1921, xxiv, 10.

1. The Early Signs of Disease of the Nervous System. Tom A. Williams.
2. Therapy of Certain Gastrointestinal Diseases. F. W. Foxworthy.
3. Anesthetic Notes. Arthur E. Guedel.

2. Therapy of Certain Gastrointestinal Diseases.—F. W. Foxworthy considers more particularly the treatment of gastric ulcer. When this diagnosis is made the first thing to do is to remove irritants. Mechanical irritation can be relieved by posture. The patient should be encouraged to lie in one position, preferably on the back. An electric heating pad should be placed over the stomach and kept on most of the waking hours. The only contraindication for the pad would be in case of hemorrhage; then the ice-bag can be used or, better, the cold water coil. Formerly gastric lavage was used to a greater or less extent, but the writer's present plan is to use the stomach tube as little as possible, only for sudden emergency or for necessary tests. Medication should be in quantities sufficient to relieve the hyperacidity. Pure sodium bicarbonate, 10 to 60 grains, with an equal quantity of calcined magnesia, may be given. Frequent tests will show the exact number of tests necessary to reduce the hyperacidity to normal. If there is hypersecretion, tincture of belladonna, 10 to 30 drops, can be given from four to six hours apart. If there is a highly nervous state a tablet of luminol may be given morning and evening. In the treatment of recurring or profuse hemorrhage, the ice-bag should be kept over the stomach, morphine sulphate, ⅛ to ¼ of a grain hypodermically, is given from one to three hours apart, according to the severity of the hemorrhage. The patient should not be allowed to move, and the bowels should be moved by enemas. From 5 to 10 c.c. of horse serum should be injected subcutaneously or intravenously, and repeated in twenty-four hours if needed. The alkalies should be increased rather than diminished in hemorrhage, for it has been proven that when the stomach contents are rendered alkaline hemorrhages are not likely to occur. Transfusion may be used as the last resort, but most cases do not require it. An excellent method of administering food during the first week or the entire period of the stay in bed is by means of the Rehfuss tube or the Einhorn duodenal tube. Peptonized milk, 2 ounces, to which 1 ounce of glucose has been added, is administered one or two hours apart. The patient is allowed to have water, but this is the only thing allowed in the stomach except the medication. If for any reason the tube is not used, Sippy's milk and cream method should be used. At the end of the first week, and in severe cases at the end of the second week, thoroughly cooked rice, tapioca, or potato soup are added to the diet. At the end of the fourth week solid food may be added. Foods to be avoided are meats, meat broths, meat gravies and sauces, stimulants, acid fruits and vegetables, sweets and coarse, irritating foods. If the patient gets along nicely meats may be added after several months.

Long Island Medical Journal.

October, 1921, xv, 10.

1. Industrial Health Work. A. E. Shipley.
2. Surgery of the Hand. William Francis Campbell.
3. Neuro-Syphilis in Various Aspects. Louis A. Bonvicino.
4. Work of the Cardiac Clinic at the Cumberland Street Hospital. Albert Comstock.
5. An Outbreak of Typhoid Fever and Its Cause. S. R. Blatteis.
6. A Case of High Creatinine Retention and a Post Puerperal Psychosis. J. F. W. Meagher.
7. Absence of Acid Forming Bacteria in Intestinal Toxemia. W. D. Donnelly.

4. Work of the Cardiac Clinic at the Cumberland Street Hospital.—Albert Comstock describes the method of handling patients and keeping recording data in use at this clinic, and lays great stress on the functional test of cardiac efficiency. At present a test is used which he says is probably inferior in many respects to the J. C. Schneider one used at Mitchell field, and yet the classification of cases they make seems so far to have checked up with remarkable accuracy with the other data, and with the prognosis they have based upon it. The patient sits quietly for some minutes, until the pulse counted twenty seconds, for three alternate intervals is equal, and then the pulse, respiration, and systolic and diastolic pressures are noted. The patient then undergoes exercise to dyspnea. Stationary running is used. The writer does not believe in the so-called "standard exercise," as they are dealing with patients most of whom have very little cardiac reserve, and in whom attempts to standardize exertion might readily produce dangerous results. When one has produced dyspnea in such a case he has called into play what reserve he may have, and that condition is the basis of the test. Immediately after exercise the systolic and diastolic pressures are taken, as well as the pulse and respiration. They are taken at five minute intervals for twenty minutes. Based on the results it is found that cases may readily be typed into four different classes, as follows: (1) The systolic pressure rises five or more millimeters, and slowly within twenty minutes returns to normal, but not below. This class of cases will show a rise of pulse not more than ten beats. Whatever the lesion the cases in this class may be given a good prognosis, provided they can be properly cared for. (2) A rise of blood pressure occurs, but the pressure after a shorter period of maintenance will fall below where it started. This shows some reserve, but a weakened myocardial state, as evidenced by the exhaustion fall. This class of patients inevitably show dyspnea on moderate exertion, and often some edema. Their prognosis is fair, but their reserve must be carefully conserved. This class of patients usually shows a pulse rise of more than ten. (3) The pressure does not rise more than three millimeters, if at all, and immediately falls to below the starting point. These cases have practically no reserve and must be rated and handled accordingly. A very pronounced pulse rise occurs. (4) Here an immediate drop occurs, and dyspnea is almost immediate. These patients have no reserve; they require no test, nor is it safe to give it. In all cases in which unexplained tachycardia or dyspnea are present and in which tremor or nervous tension are seen the Goetsch test is done to detect cases of hyperthyroidism. They are beginning to eliminate from their nosology the term "decompensation," and to encourage in its place merely a statement as to the amount of cardiac reserve present. To the writer's mind the heart which shows the slightest deviation from normal is not compensating. When any dyspnea or lowering of the reserve index is present the patient is decompensating. What is commonly called decompensation is one of three conditions—auricular fibrillation, auricular flutter, or dilatation. Another disease which is eliminated from their nomenclature is "angina pectoris." The drug therapy used in the clinic is very simple; digitalis, nitroglycerin, aconite, and the bromides, together with castor oil, are the main remedies.

6. A Case with High Creatinine Retention and a Post Puerperal Psychosis.—J. F. W. Meagher reports this case, in which the blood chemistry examination a few days after delivery showed creatinine 6.6 and 6.8, also a moderate urea retention and a hyperglycemia. Myers and other investigators have shown that a high creatinine retention portends a grave outlook. This woman recovered physically. The urine, which showed a great amount of albumin and hyaline casts, cleared up rapidly, showing that one might at times fail to find a nephritis if he relies on the urinary findings alone. Associated with the kidney trouble was a mental condition thought to be an infection-exhaustion psychosis. In such a condition one ordinarily gives a good prognosis, but in this case as time went on there were elements suggestive of dementia praecox and the outlook for recocvery at the end of three months was dubious.

American Journal of the Medical Sciences.

November, 1921, clxii, 5.

1. The Pathways of Infection in the Nervous System. Foster Kennedy.
2. The Effect of Treatment for Syphilis on Severe Anemias. H. O. Foucar and John H. Stokes.
3. Leukemia in Children, with Special Reference to Lesions in the Nervous System. Murray H. Bass.
4. Pericarditis: Incidence and Diagnosis. W. W. G. Maclachlan.
5. Balantidium Coli and Pernicious Anemia: Report of Four Cases. A. H. Logan.
6. Some Experiences with the Meltzer-Lyon Method of Draining the Biliary System. Anthony Bassler, William Henry Luckett and J. Raymond Lutz.
7. Acute Pancreatic Necrosis. John Douglas.
8. Immune Bodies in a Type I Lobar Pneumonia. Edward Steinfield and Herbert J. Darmstadter.
9. Studies on the Chemistry of the Body in Diseases of the Skin. Oscar L. Levin and Max Kahn.
10. Acute Suppurative Appendicitis (Gangrene of the Appendix) Experimentally Produced. Richard J. Behan.
11. An Auscultatory Sign Observed in Acute Abdominal Diseases. Paul W. Aschner.
12. A Contribution to the Study of Lethargic Encephalitis in Its Relation to Poliomyelitis. M. Neustaedter, John H. Larkin and E. J. Banzhaf.
13. Meralgia Paresthetica (Roth's or Bernhardt's Disease): with the Report of Five Cases; Three Cases Occurring in the Same Family. Hyman I. Goldstein.
14. Chronic Tuberculosis of the Kidney. Edwin Beer.

2. The Effect of Treatment for Syphilis on Severe Anemias.—H. O. Foucar and John H. Stokes find that severe anemia, either primary or secondary, associated with late or latent syphilis, is apparently rare, twenty-five cases appearing in approximately 4800 records in the Section of Dermatology and Syphilology of the Mayo Clinic. Pernicious anemia may be seen in association with syphilis, but no case exhibiting an incontestable etiological connection has appeared in their records. Pernicious anemia in the apparent absence of syphilis may yield a positive serum Wassermann reaction. Mercury by inunction, used alone, produced an unfavorable reaction in four of nine patients with anemias who had previously improved under arsphenamine, but all had primary anemia and subsequently showed evidences of a relapsing unfavorable course. It seems, therefore, that in syphilis with anemia mercury should be used with caution, especially if the picture suggests the primary type. Only one of twelve patients with secondary anemia became worse under arsphenamine. Arsphenamine has been much more effective in secondary than in primary anemia, but curiously disappointing in secondary anemia with associated manifestations of syphilis. Twelve of sixteen patients improved under transfusion, four of them after arsphenamine had failed. In four of sixteen cases transfusion was without effect. Transfusion should be a preliminary to arsphenamine when the hemoglobin is below 20 per cent. Reactions to arsphenamine injections must be carefully avoided since they may produce an alarming drop in hemoglobin. No satisfactory rule for determining which case would improve on treatment for syphilis and which case would not could be arrived at. In general half the cases may be expected to improve. The degree of improvement is not necessarily proportional to the demonstrability of syphilis. The pernicious anemia associated with undoubted syphilis has run the ultimate course of pernicious anemia, regardless of the treatment for syphilis. Hemoglobin estimations alone are not sufficient to indicate the progress of the patient. The hemoglobin may rise and the number of erythrocytes fall at the same time. Arsphenamine treatment is safe if carefully used in anemia, and should be employed in patients with undoubted evidence of the disease, and, as a therapeutic test, when reasonable suspicion of its presence exists. Transfusion must remain the ultimate resort in primary cases, and in those cases associated with syphilis in which arsphenamine has failed, even in the presence of syphilis, the best effect will be secured by both together.

5. Balantidium Coli and Pernicious Anemia: Report of Four Cases.—A. H. Logan points out that the clinical symptoms of invasion by *Balantidium coli* bear a great similarity to those produced by ameba. Both present an acute and a chronic form. In the acute form there is severe bloody dysentery, with great loss of fluid and marked tonicity. Perforation may occur. Death follows usually in from a few days to a week or two. The chronic form often exists for years with alternating constipation and diarrhea. In the chronic type the prognosis is bad only when the syndrome of pernicious anemia is added. In the cases reported death has been due to pernicious anemia rather than directly to the dysentery. It seems probable that the constant subjection of the blood-forming organs to the poison is the cause of the pernicious anemia syndrome in the chronic type of case. In his latest case of *Balantidium coli* infection the writer has employed arsphenamine with apparently good results. On account of encystment treatment must be carried out for a long time. It is interesting in connection with the family histories of three of the cases reported that death of one or more parents, brothers or sisters, persons in the same household, living under the same conditions, and eating the same food, occurred from pernicious anemia or anemia. This infection may explain the family tendency to pernicious anemia in many cases.

6. Some Experiences with the Meltzer-Lyon Method of Draining the Biliary System.—Anthony Bassler, William Henry Leckett, and J. Raymond Lutz, during the past year, have been conducting investigations with clinical cases, operation observations and animal experimentation pertaining to the Meltzer-Lyon method of aspirating duodenal contents after the installation of a solution of magnesium sulphate. As a result of their observations they feel that the following conclusions are warranted: (1) The assumption of Meltzer of "the law of contrary innervation" is not proved, and this throws into doubt any specific effect of relaxation of the sphincter of Odii and contraction of the gall-bladder induced by a magnesium sulphate solution. (2) Any one of many substances taken into the stomach or injected into the duodenum will cause a ready flow of bile, of which a solution of hydrochloric acid in about one-third the acidity of normal gastric juice is the most potent for discharge of bile in large quantities and obtaining characteristic "B" bile. (3) That the deeper color of the "B" bile is due to oxidation and not concentration from retention in the gall-bladder, this bile most often coming directly from the liver as a phenomenon of bile secretion. (4) That the viscosity of bile does not elevate its specific gravity to any practical extent. (5) That the margin of error in deducting from the presence of mucopurulent flakes, pus cells, inflammatory débris, bacteria and cells in the aspriated bile as positively coming from the gall-bladder is too great for clinical deduction. (6) That the physiology of the gall-bladder should not be deduced from anatomy and relationship alone—that its most important function seems to be to relieve pressure within the biliary system to protect the pancreas rather than acting as a reservoir for bile in a digestive sense and that the physiology of bile secretion and gall-bladder function should be studied more thoroughly. (7) That cholectomized individuals show the characteristic "B" bile even shortly after operation before the ducts have had a chance to dilate. This occurs so commonly that "B" bile cannot always be from the gall-bladder. (8) The increase in specific gravity in aspirated bile by this method is due to the content of magnesium sulphate which appears to be resorbed into the portal circulation and is excreted by the liver substance in the bile. It is erroneous to deduce clinically in both amounts of bile obtained of any gradation (A, B, C, D) or by specific gravity estimations as to whether bile stasis exists or not. (9) That where true pathology exists in the gall-bladder the method is a poor substitute for proper surgery. It may be employed in suitable cases as a temporizing means, but it should not be depended upon to correct or definitely benefit pathologically diseased gall-bladders or when gallstones exist.

8. Immune Bodies in Type I Lobar Pneumonia.—Edward Steinfield and Herbert J. Darmstadter removed blood from a male patient suffering with Type I pneumococcus pneumonia on the fourth day after the injection of immune serum, and conducted agglutination tests by the macroscopical method. This consisted in mixing in small test tubes 0.5 c.c. of a twenty-four-hour broth culture of pneumococcus Type I and 0.5 c.c. of the patient's serum in various dilutions, the final dilution being of course double that of the strength of the serum used. The test tubes were then incubated at 37.5° C. for one hour, placed in the refrigerator for

twenty-four hours, and read for clumping. The patient's serum showed definite power of agglutination in dilutions up to 1 to 10 (the final dilution). There were sufficient immune bodies in the patient's serum to protect against 500 times a lethal dose of Type I pneumococci. Controls of normal serum did not protect against the lowest dose.

11. An Auscultatory Sign Observed in Acute Abdominal Diseases.—Paul W. Aschner has applied auscultation to the abdomen in acute cases and finds that the heart sounds and the inspiratory murmur are audible over three or four of the quadrants in a large proportion of cases. The heart sounds are somewhat distant and remind one of the fetal heart sounds familiar to the obstetrician. The inspiratory murmur was audible at times with quiet respiration, and at others only when the patient was requested to breathe more deeply. When the abdomen was opened the peritoneal cavity of patients presenting these ausculatory signs was found to contain free pus, seropurulent fluid or blood (as in a case of ruptured tubal pregnancy). Several cases of ascites were examined with reference to this sign and were negative in every instance.

12. A Contribution to the Study of Lethargic Encephalitis in Its Relation to Poliomyelitis.—M. Neustaedter, John H. Larkin, and E. J. Banzhaf describe experiments showing that five monkeys were completely protected from poliomyelitis by sera of patients convalescent from four undoubted cases of lethargic encephalitis and one suspected case. Their results compare favorably with the results of other investigators in the neutralization experiments of poliomyelitis virus and convalescent human poliomyelitis sera.

Il Policlinico.

December 5, 1921, xxviii, 49.

Large Doses of Arsenic in the Treatment of Nervous and Mental Diseases.—Bianchi of the Neurological Clinic of the University of Parma refers to the use some years ago of sodium cacodylate in Parkinson's disease and certain other spastic and rigid states. Incidentally in high blood pressure cases the latter was reduced. Some patients benefited were hemiplegics in whom the contractures were favorably influenced and presumably the high blood pressure which preceded the stroke. Results of this type naturally raised the question "were these beneficiaries also syphilitic?" The cacodylate was given by ordinary hypodermic and the daily quantity given ranged from 40 cgms. to 2 grams, beginning with the small dose. Other conditions treated in this manner were purely functional—depressive states and neurasthenia. The experience in the Parma Clinic seems to have been striking, although of short duration after withdrawing the remedy. The conditions treated were cases of cerebral palsy in relatively young subjects associated with paralyses and contractures and in some cases with epilepsy. The spasticity showed improvement and the blood pressure came down. The patients in this group all showed mental defect and some also presented athetosis and choreiform movements, and the latter motor disturbances showed improvement. The amount of improvement seemed all that could have been possible under the circumstances for the arsenic was pushed to the limit. Recently in the French clinics the same drug has been given intravenously for true Parkinson's disease as well as the spurious form which follows epidemic encephalitis with considerable success. This resource has also been tested in the Parma Clinic. Here, as in the preceding cases, there was some improvement and the author will investigate further. A case of paresis treated intensively with the cacodylate showed no change.

Schweizerische medizinische Wochenschrift.

December 15, 1921, li, 50.

Tuberculous Myocarditis.—This subject is discussed in two consecutive papers, of which the first is by Massini of Professor Stahelin's Medical Clinic at Basle, while the author of the second is Lüscher, assistant to Professor Hedinger of the Pathological Institute of the same city. Of recent years evidence has accumulated of the existence of nonspecific inflammation of tuberculous origin. The most familiar type is lupus erythematosus of the skin. Of the same nature are forms of cirrhosis of the liver, contracting kidneys, etc. The nonspecific inflammation is often associated with active tuberculosis of the lungs, etc. In other words, tuberculosis may be said to imitate many nonspecific lesions. Often the nature of some of these is in doubt, as in so-called tuberculous rheumatism of Poncet. In some cases a few bacilli may be found, although naturally there are no tuberculous histological changes. In other cases with no trace of bacilli in the actual lesions toxins generated elsewhere are accused of inciting the inflammation. We know little of the nature of chronic myocarditis, and while actual bacillosis of the myocardium is also known the frequency of simple myocarditis in the tuberculosis is beyond doubt. In Poncet's conception of a tuberculous type of rheumatism myocardial lesions are assumed. A common sense view of these cases would make myocarditis of the tuberculous due to an associated infection. However, the author has a case in which tubercle bacilli were actually found in the myocardium of a woman aged sixty-eight, in which the full autopsy diagnosis was chronic fibrous myocarditis without evidence of any active tuberculous lesions in the body, other changes being those of vascular degeneration, chronic bronchitis with emphysema and indifferent lesions. Apparently the bacilli were equal to the task of setting up simple myocarditis. In the Lüscher paper the author deals with one case of actual tuberculosis of the myocardium, in which there is a production of specific granulation tissue as well as the presence of bacilli. This tissue has a certain tendency to fibrous metamorphosis. The author gives two cases in great detail. It does not appear that either patient was tuberculous elsewhere. The second patient of Lüscher's was apparently more closely related to Massini's case than to his first one. That is, there was no specific tissue characteristic of tuberculosis and the case would ordinarily have passed for nonspecific.

Gazette des Hôpitaux.

December 13-15, 1921, xciv, 98.

Stomach Vertigo and Extrasystoles.—Lemierre refers to Trousseau's description of *vertigo a stomacho laeso* and to the popular association of dizziness with indigestion. Apparently the great clinician was unable to relieve this kind of vertigo by treating the stomach, nor does it appear that he gave these patients a thorough examination. He doubtless knew of auricular vertigo, but he could hardly have been aware of the Stokes-Adams syndrome; at any rate, he does not mention the state of the pulse of these subjects. In the elderly, gastric vertigo was apt to be of bad prognostic, as it was frequently followed by apoplexy or softening of the brain. In stomach vertigo, according to Trousseau, the digestion might be excellent. At the present day the clinician thinks of the stomach only after all other causes of vertigo have been eliminated—the ear, circulation, and nervous system. The author has often seen cases of alleged stomach vertigo which were found to be due to Stokes-Adams syndrome, labyrinthine disturbances, arteriosclerosis, brain-tumor, etc. He has never seen a case, in fact, which answered to Trousseau's type of vertigo, but believes that this occurs albeit very rarely. The so-called gastric vertigo is probably a condition due to air swallowing and accompanied by extrasystoles, for in subjects with this syndrome we see slight vertigo and fainting fits attributable to an intermittent ischemia of the bulb, the mechanism being identical with that of the Stokes-Adams syndrome. The dyspeptic with extrasystole is a neurotic subject without organic stomach disease. The author gives a long case history of a patient with syncopal attacks provoked by extrasystoles which yielded to simple dietetic precautions maintained over a year, chiefly small and nutritious meals. His cardiac rhythm became normal after years of irregularity. As the patient was 80 years old and an ex-syphilitic with an apparently incurable indigestion, the author naturally regards this result as almost unique. Vertigo and syncope have probably an analogous mechanism in these cases, to wit, one involving the vagus nerve and the circulation of the bulb.

Book Reviews.

SOAPS AND PROTEINS, THEIR COLLOID CHEMISTRY IN THEORY AND PRACTICE. By MARTIN H. FISCHER, Doctor of Medicine, Eichberg Professor of Physiology in the University of Cincinnati. Price $4.00. New York: John Wiley & Sons, 1921.

WHEN the versatile author began his studies of soaps, his aims were purely biological—a study of a phase of colloid chemistry, in which soaps may to a certain extent replace proteins. From the study of soaps it then became possible to extend the research to proteins. On the one hand the work could be further extended to soap manufacture, while at the other extreme the studies of protein culminated naturally in the behavior of the animal cell in such diverse conditions as coagulation, digestion, and intoxication with ammonia and the heavy metals. As the author states, the subject matter of the book was dictated largely by circumstances, and it therefore has an appeal to very different classes of students—chemists of all kinds, biologists, and physiologists, and the commercial soap manufacturer.

DIE GESCHLECHTSKÄLTE DER FRAU, Eine Psychopathologies des Weiblichen Liebesleben. Von Dr. WILHELM STEKEL. Nervenarzt in Wien. Zweite, verbesserte und vermehrte Auflage. Preis M 96. Berlin and Vienna: Urban & Schwarzenberg, 1921.

THE first edition of this work appeared in 1920 and the present one contains eighty-eight additional pages. The first edition of so important a monngraph was quickly exhausted, and in the meantime the author did his best to incorporate overlooked and new matter. A chapter has been added on the climacteric years. The prodigious literary activity of the author is shown in the fact that this monograph of nearly 500 pages—easily the "headquarters" of the study of feminine frigidity—is only one of a series of works by the author in the general province of what he terms "parapathic affections" or "disorders of instinctive and affective life." The other volumes of the author's series, some of which are as yet unissued, comprise nervous anxious states, onanism and homosexuality, psychic male impotence, psychosexual infantilism, masochism and sadism, compulsive neuroses and epilepsy. There will also be a terminal volume which covers the technique of psychotherapy and contains a general index and summary. When this series is completed the author will stand out as an encyclopedist in his wide province, who has produced his system without the aid of collaborators. It is extremely unusual, if not altogether unique in our day, for one man to assume the entire responsibility for a medical system of eleven volumes of published material. To find its fellow we have to go back to medieval writers.

SOCIAL ASPECTS OF THE TREATMENT OF THE INSANE. By JACOB GOLDBERG, Ph.D. New York: Columbia University Press, 1921.

THIS volume on insanity, evidently from the pen of a layman, constitutes number 2 of volume xcvii (whole number 221) of the series known as "Studies in History, Economics and Public Law" of Columbia University, published by the Faculty of Political Science of the same. The work was composed because the author was unable to find any volume which covered the subject matter. The six chapters deal in succession with the history of care of the insane in New York State, insanity as a community problem, results of State Hospital care, a social survey of 786 admissions to State hospitals, social treatment of the insane and recommendations and conclusions. The material considered is largely Hebrew insanity, not from choice, but because the writer, himself of this race, moved along the lines of least resistance, having a greater degree of access to the documents. It is perhaps hardly fair to allude to the author as a layman, for while he is not an alienist or lawyer specializing in forensic cases, nor a professed psychologist, nor pedagogue, he approaches the problem of insanity from the angle of sociology and economics and is therefore able to qualify as an expert. Another modern discipline which bears notably on his presentation of the subject of insanity is that of mental hygiene, an outgrowth of the community plan of preventing insanity. The book abounds in footnote citations of passages from alienists, hospital reports, judicial decisions, writers on delinquency, sociologists, statisticians, mental hygienists, writers on adolescence, etc., and furnishes an excellent general introduction to the subject of insanity, and a work of authority on insanity among the Hebrews.

MENTAL HOSPITAL MANUAL. By JOHN MACARTHUR, M.R.C.S., L.R.C.P. Senior Assistant Medical Officer, London County Mental Hospital; Colney Hatch; Lecturer on Mental Diseases to the North-East London Post-Graduate College. New York: Oxford University Press, American Branch, 1921.

THIS volume deals with the following subjects: The mental hospital, the assistant medical officer, treatment of the insane, emergencies, treatment of special mental states, defective habits, admission of new cases, recoveries, contagious diseases, reception of patients and statutes relating to the insane. There is no chapter on insanity as a community problem, and in his preface the author states expressly that the book is for intramural activities alone. Preventive as well as follow-up efforts are not touched on. Although intended as a handbook for those who have already elected to serve in mental hospitals it strikes us that it would serve excellently as a textbook or for collateral reading during the last school year. In most colleges the student learns what he knows of insanity from his forensic textbooks and those on diseases of the mind and nervous system—neither of which superposes what might be learned from a book of this scope.

ESSENTIALS OF DIETETICS. A Textbook for Nurses. By MAUDE A. PERRY, B.S. Formerly Dietetitian and Instructor in Dietetics at Michael Reese Hospital, Chicago, etc., etc. St. Louis: C. V. Mosby Company, 1918.

THIS small volume contains 159 pages and is divided into two sections, devoted respectively to essentials of dietetics and diet in disease. It is composed along conventional lines although under diet and disease there is a doubling up of subjects which saves a certain amount of repetition. Thus the diet of renal and cardiac disease is given jointly, as is that of anemia and tuberculosis, skin diseases and scurvy, and affections of the liver and metabolic anomalies—with the exception, of course, of diabetes which has a separate chapter. This grouping in no wise implies that the diet for skin diseases corresponds to that of scurvy, for each is separately dealt with. The author, however, seems to see a marked factor of undernutrition in skin diseases. But it is more practicable to think of a greater part of skin diseases as allied with metabolic disturbances, like gout, obesity and diabetes, rather than with undernutrition. Again, the diet of acne agrees closely with that of atonic dyspepsia, etc.

THE CLINICAL EXAMINATION OF DISEASES OF THE LUNGS. By E. M. BROCKBANK, M.D., F.R.C.P., and ALBERT RAMSBOTHAM, M.D., F.R.C.P. Price $1.50. New York: Paul B. Hoeber, 1921.

BOTH authors are members of the faculty of the University of Manchester (the former being the Dean) and both are internists in the Royal Infirmary. The booklet of nearly a hundred pages dispenses entirely with radiographic diagnosis and its seven chapters are devoted respectively to preliminary considerations, routine examination, inspection, palpation, percussion, auscultation and physical signs. The work is wholly personal to the authors and the outgrowth of the experience of teachers on the subject concerned. It is also an indorsement of the success of a similar book on the heart. It is written entirely for the student although not advertised as a mere quiz compend or guide to examinations.

BIDRAG TIL HJERNECHIRURGIENS KLINIK OG RESULTATER. Av V. MAGNUS. Kristiania: Trykt i Merkur, 1921.

THIS brochure of 138 pages is devoted to the indications and technique of surgical intervention in brain tumors, the surgical treatment of trifacial neuralgia, the technique of extirpation of the Gasserian ganglion and palliative trepanation. The book contains 111 case histories and brief conclusions therefrom.

ANXIETY HYSTERIA. By C. H. L. RIXON, M.R.C.S., Senior Neurologist, Ministry of Pensions' Neurological Hospital, Exeter, and D. MATTHEW, Neurologist to the Same Institution. Price $1.50. New York: Paul B. Hoeber, 1921.

READERS of Freud and Stekel are doubtless familiar with the conception of anxiety-hysteria, which is the subject of the present monograph. Chapters are given on the nosological position, psychopathology, symptoms, diagnosis, and treatment and there is a special one on the conversion symptoms of hysteria. The very largely military character of the material appears to eliminate the necessity of sex mechanisms in bringing about mental conflicts. It is for this reason that the authors seek to rid themselves of the term and suggestion of "psychoanalysis" and to substitute that of "mental exploration." Civil life shows plenty of like cases without the sex element. There is a foreword by Dr. Lisle Webb, the head of the Pensions' Military Hospitals. The reader is informed that the term "anxiety hysteria" is largely synonymous with functional neuroses, comprising much that goes by the name of neurasthenia, shell shock, and hysteria. The authors, however, recognize a true neurasthenic syndrome and a psychasthenia which comprises phobias and obsessions.

NERVÖSE ANGSTZUSTÄNDE UND IHRE BEHANDLUNG. Von WILHELM STEKEL, Nervenarzt in Wien. Dritte, vermehrte and verbesserte Auflage. Price 78 Marks. Berlin and Vienna: Urban & Schwarzenberg, 1921.

THIS work appeared originally in 1908 with a preface by Freud. From the first the author has sought to change the nomenclature of the neuroses by eliminating such names and concepts as neurasthenia and psychasthenia, while hysteria is reduced to conversion phenomena and hysterical fear states, in which conversions to physical phenomena also occur. For the older concepts he substitutes anxiety neuroses and parapathies.

He divides his subject matter into two principal sections—anxious neuroses and phobias. The former differ from the latter radically in that the morbidity is objective and physical while the phobias are essentially subjective and affect the behavior. Anxiety neuroses therefore are always mimicking organic disease and are always motivated by a mental conflict.

Stekel gives the impression that he is the chief pupil and logical heir of Freud. Originally a follower he now claims to be a leader and asserts that he has won Freud over to the acceptance of some, at least, of his views, while in others he is at variance with his master. The author laments that the specialist loses touch with ordinary practice because he naturally gets only the worst types of psychogenic disease pictures. The family physician could doubtless greatly benefit his patients by a study of the modern theory and practice of neuroses.

HANDBOOK OF ELECTROTHERAPY FOR PRACTITIONERS AND STUDENTS. By BURTON BAKER GROVER, M.D., President of the Western Electrotherapeutic Association; Fellow of the American Electrotherapeutic Association, etc., etc. Price $4.00 Philadelphia: F. A. Davis Company, 1921.

IN his preface the author estimates that about 25,000 physicians in the United States employ electricity as a therapeutic agent, and that few of the medical schools give systematic instruction in electrotherapy. This he regards as sufficient justification for the publication of a new textbook giving the greatest amount of instruction in essentials in the least space. The book contains 417 pages and 103 text illustrations exclusive of six plates of twelve charts. With the exception of a chapter on röntgenology the work is devoted wholly to the application of electric currents. There are three chapters devoted to electrophysics and electrochemistry, one to galvanism and static currents jointly, one to high frequency and sinusoidal currents jointly, and one to diathermy. Faradism is considered briefly under galvanism. Diseases in which electricity is indicated are comprised under blood pressure, hyperpiesia, pain, genitourinary diseases, and miscellaneous in which all other indications for electrotherapy are alphabetically summed up. The arrangement is therefore eminently practical. Intentionally or unintentionally the author does not invade the domain of the neurologist, save, of course, in the relief of pain. He is thus able to reduce the size and cost of the book and at the same time draw a sharp line between general electrotherapy and neurology. Thus the entire subject of electrodiagnosis occupies but two pages.

FEEBLENESS OF GROWTH AND CONGENITAL DWARFISM With Special Reference to Dysostosis Cleidocranialis. By Dr. MURK JANSEN, O.B.E., Lecturer on Orthopedic Surgery, University of Leiden, Holland. New York: Oxford University Press, American Branch, 1921.

THE author seeks to work out the following two principles: First, injurious agents affecting growing cell groups enfeeble their power of growth; second, the measure in which growth is enfeebled is proportioned to the rapidity of growth. The first section of the book is devoted to feebleness of growth, its tissue and organ expressions, including and outside of the locomotor apparatus; while the second section is taken up with the various forms of dwarfism (exclusive of true nanism) with special references to cleidocranial dysostosis. In his preface Dr. Robert Jones classes the volume as a contribution to philosophy by a humanitarian orthopedic surgeon.

THAT BOGEY MAN THE JEW. By G. FRANK LYDSTON, M.D., D.C.L., formerly of the Faculty of the State University of Illinois, and of the Chicago Kent College of Law. Containing 136 pages. Price $1.25 net. Kansas City, Mo.: Burton Publishing Company.

THIS little book is a reply to an article entitled "The International Jew" which appeared recently in the *Dearborn Independent*. The author states that he was impelled to write it merely because taking up the gauntlet in behalf of the fellow who is receiving the punches is a sort of psychic habit into which he has fallen. He has not only taken up the gauntlet but has used it unsparingly, rather indiscriminately, sometimes even venomously, not alone on the "Jew-baiter" but on any human frailty that has chanced within striking distance. The Treaty of Versailles, militarism, democracy, etc., all come in for a share of hard knocks. That the book will accomplish the author's aim of promoting a better understanding between Jew and Gentile is perhaps doubtful, but it affords an hour's reading and a little study of human nature that, to say the least, is not dull.

READINGS IN EVOLUTION, GENETICS, EUGENICS. By HORATIO HACKETT NEWMAN, Professor of Zoology in the University of Chicago. Price, net, $3.75. The University of Chicago Press, Chicago, Ill.

FOR a work handling such difficult subjects this book proves to be remarkably interesting as well as thoroughly instructive. It brings under one cover a collection of excerpts wisely chosen, beautifully classified, and written by the keenest minds devoted to the offered knowledge.

The book is divided into five parts. Part one gives an outline of the history of the development of evolutionary science with the names and contributions of the leading evolutionists. Part two offers the evidences of organic evolution. Part three treats with causo-mechanical theories of evolution using Darwin as the main topic. Part four is devoted to genetics or modern experimental evolution. Part five takes up eugenics —genetics working out human improvement. This outline of the book sounds a little dry, but it belies its subjects, for the book itself is a fascinating presentation of vital material all devoted to the ultimate development of a race which can be free of unnecessary blemish to carry forward the work of the world in happiness and health. In other words it is a splendid working out of the survival of the fittest of the best species—sound mentally, morally, and spiritually. It does not seem too much to hope for in the time to come, when the knowledge offered in this book shall have been combined with other efforts for betterment of mankind. Only mankind is so slow.

The publishers as well as the author deserve high commendation for the beauty of this publication. The type is delightful and illustrations are cleverly reproduced.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held December 15, 1921.

THE PRESIDENT, DR. GEORGE DAVID STEWART, IN THE CHAIR.

THE program of the evening was arranged in co-operation with the Section on Genitourinary Surgery.

Renal Infections.—DR. WILLIAM C. QUIMBY of Boston read this paper, which was based upon experimental work carried out in the Laboratory of Surgical Research of Harvard Medical College and observations made in the clinic of the Peter Bent Brigham Hospital. He stated that for many years it had been generally appreciated that two outstanding and evident routes existed by which it was possible for infectious organisms to reach the kidney, namely, by way of the blood stream and upward through the urinary passages. The first was called the descending, the second the ascending route of infection. It came to be known that virulent living organisms might and frequently did pass through the kidneys, and as frequently left it intact. This property of the kidney was a basic one, holding true for all bacteria as well as for inert particles of matter, if these were of a size sufficiently small. If the kidney was able to transmit organisms without demonstrable detriment to itself it became necessary to look further for the reason why it might become the seat of inflammation often leading to the serious crippling of its function or to complete destruction. The two outstanding reasons were evident. The first concerned the virulence and quantity of the infecting organism; the second was found in stases within the organ itself. There was, however, a very definite and rather low limit in the numbers of bacteria which could thus be gotten rid of. Organisms of higher virulence and in large numbers on reaching the kidney by way of the blood stream could not be gotten rid of but remained to cause infection. This infection clinically was of various degrees of severity. A second potent contributing cause of infection of the kidney was found in any circumstances which slowed down the mechanism by which the kidney rid itself of its product, the urine, and thus brought about stasis of greater or lesser degree. Impediments to the kidney mechanism came most frequently from stone, ureteral angulations due to ptosis, tumors, and anomalies of the renal blood vessels. Infection which reached the kidney by the blood stream was transmitted to the blood from some pre-existing focus, so attention should be paid to finding such localization in teeth, tonsils, bowels, etc., and removing them. That infection should reach the kidney by ascent from below presupposed of course the existence of cystitis. Knowing, as we did today, the remarkable resistance of the bladder mucosa to infection under ordinary conditions, it became at once evident that the view which held the source of infection of the kidney to be by way of the blood stream must be true in the large majority of cases. Circumstances occurred, however, notably in diseases of the lower urinary tract, such as stricture, prostatitis, enlargement of the prostate in men and cystocele in women, which led to frequent infections of the bladder. The problem then concerned those conditions which might or might not permit the upward propagation of bacteria from bladder to kidney. There were two ways by which bacteria from the bladder might reach the kidney, one by way of the lymphatics and the other by the lumen of the tube. The first had never been satisfactorily proven. None of the work along this line bore careful criticism. The objection urged to infection by way of the lumen was that because of the current of urine, as well as contracting muscular peristalsis, bacteria did not have sufficient power of motion to ascend. This objection was entirely valid. Only where the ureterovesical valve had become incompetent and the ureter a dilated tube with indurated wall could there be an approach to conditions which would permit such an ascent of bacteria. There was still another method of infection of the kidney which had not received sufficient consideration either by physiologists or clinicians, namely, the so-called *ureteral reflux*. This was distinctly *not* a retroperistalsis, as had been shown by Penfield. (*American Journal of the Medical Sciences*, July, 1920). Dr. Quimby described these experiments and also those of Graves, whose experiments on rabbits and dogs showed that while reflux occurred at widely differing degrees of intravesical pressure, a quick elevation of this pressure was more potent in promoting this reflux than a slow one. Having shown that this reflux occurred in animals, it became of interest to determine whether it was a phenomenon entirely confined to laboratory animals, as the rabbit, or whether it could be produced or observed to occur spontaneously in man. They had been attempting to produce the reflux in suitable patients by introducing into the bladder a solution of bromide of sodium, while observing at the same time the ureters by means of the fluoroscope. In somewhat over half their observations it had been possible to see a column of opaque solution suddenly penetrate one or both ureters. In a number of normal individuals, after filling the bladder to examine its outline by *x*-ray, the plates were found to show that the injected fluid had penetrated upward into either one or both ureters. The importance of this reflux, if it proved to be as common a phenomenon as now seemed to be the case, was great for the problem of the ascending route of renal infection. Clinical experience brought evidence which made the activity of the reflux a fair presumption. First, the so-called catheter or ureteral chill supported this thesis. The catheter or ureteral chill was probably explained by assuming that a bladder, for some reason more irritable and hypertonic than normal, had been stimulated to contract suddenly by the passage of the instrument and a reflux of a portion of its infected contents upward into the kidneys was thus brought to pass. Once having reached the kidneys, this material found ready access to the circulation, as experimental work had shown. A second clinical phenomenon, only logically explained by the operation of ureteral reflux, was that during convalescence following prostatectomy a patient might suffer sharp rise in temperature, sometimes accompanied by chill. Examination would show tenderness in one or other loin over the kidney, usually mild and transient. This rise in temperature occurred just after the suprapubic wound had healed to a sufficient extent so that urination *per urethram* had taken place for the first time since operation. Post-operative notes on patients in the hospital were quoted to illustrate this point, which seemed to be explained by assuming that the bladder for a longer or shorter period quiescent, had become hypertonic, and on first resuming its function of the expulsion of urine had caused the reflux to appear, resulting in the upward transfer of infected material to the kidney. In the treatment of renal infections the strongest weapon we possessed was water, by the diuretic action of which the kidney was enabled to rid itself of the infecting organisms. Water should be regarded as a medicine and as definite orders given concerning its administration as would be given in case of morphine. He administered 3500 to 4000 c.c. of water in 24 hours. He felt that the action of salol and hexamethylenamine was at best but feeble. Vaccines he had found to be of no value. Removal of foci of infection elsewhere in the body was most important. The local treatment of renal infections by injection of solutions into the renal pelvis was a very important procedure concerning the value of which there could be no doubt. In conclusion, Dr. Quimby emphasized the importance of early recognition and treatment of infections of the kidney, and that, whether acute or chronic, blood-borne or ascending, these infections were always secondary to a primary focus elsewhere than in the kidney itself. Therefore, if a cure could be accomplished by other means than nephrectomy it would be most assured after this primary focus had been adequately controlled.

DR. EDWIN BEER said it was a great pleasure to listen to Dr. Quimby's very suggestive paper, in which he had touched upon some important experimental work he had been doing and made use of it in explaining some of the difficulties we had had in the past in attempting to explain renal infections. It was surprising how much of what was known on this subject had come from work done in surgical laboratories. Pathologists had given us very little light on this

question whereas surgical clinics and surgical laboratories had given us almost all the experimental work we had in regard to the pathogenesis of pyelitis, pyelonephritis and tuberculosis of the kidneys. If one read the books of thirty years ago one could readily see how much progress had been made which had made it possible for Dr. Quimby to express himself as he had tonight. Limiting himself to a discussion of the pathology and treatment of kidney infections, Dr. Beer said that the staphylococcus, pneumococcus and colon bacillus were almost always carried to the kidneys through the blood stream. The question as to whether the colon group could be lymphogenic he felt was not definitely settled. It was well known that the veins and arteries were accompanied by lymphatics and that there were blood vessels passing from the kidney to the lower part of the ureter, so that the ureter was supplied with blood from the kidney. It might be possible for infection to ascend in these perivascular lymph vessels. He thought we could not deny the possibility of lymphatic infection especially where previous inflammation had existed in the lower tract. To what extent refluxes were responsible it was difficult to say, but he would like to ask Dr. Quimby why inflammation did not occur more frequently in cases in which a ureteral catheter was passed through an infected bladder. It seemed to him that the infrequency of these infections was a point against the ascending theory of infection by refluxes. So far as treatment was concerned cases should be separated diagnostically into two groups: First, the colon bacilli group, in which the cases could be treated with much milder methods than in cases infected with staphylococci or streptococci, etc.; the latter group almost always required kidney operations at times even nephrectomy. In colon bacillus infection free drainage and copious water administration was usually sufficient, though occasionally decapsulation was needed. Thus in the treatment one must be guided by the causative agent and nephrectomy was practically never indicated in the colon bacilli cases while in the coccus cases it might be life-saving.

Dr. LEO BUERGER said he thought everyone had been stimulated by Dr. Quimby's interesting observations, in which the latter had followed a long a line of thought touched upon by a number of writers. Ascending infection was important, but that it was as important as Dr. Quimby would have us believe, was very doubtful. As for the experiments themselves, Dr. Buerger said he would like to have Dr. Quimby explain if the patency of the ureter in the centripetal sense was not an artifact produced by experiments. Everyone was familiar with the antagonistic action of the sphincter and the detrusor muscle. With artificial stimulation of the sphincters one can obtain an antagonistic relaxation of the detrusor muscle. During the period of such relaxation the ureter orifices might have lost sufficient tonus to permit of the regurgitation of urine. He also suggested that in following out these studies it would be of value to stimulate the pudic nerve, the *nervi erigens* and the internal sphincter, with the idea of exciting a sphincter spasm, and to observe whether the detrusor, under such conditions, was hypotonic, and whether it then would allow regurgitation to take place. Furthermore, Dr. Buerger called attention to certain of his own observations made as far back as ten years ago, that would support some of Dr. Quimby's contentions. When collargol was first employed in pyelography he had observed and reported the rapid invasion of the renal parenchyma and even the cortex with collargol precipitate. Such findings demonstrated beautifully the facility with which solutions were imbibed, as it were, by the renal organ, even when excessive intrapelvic pressure was absent. Given ureterorenal reflux, therefore, the possibility of infection by direct extension through the tubules was readily understood. The rôle of obstruction to urinary outflow from the kidney should not be underestimated. It was effective as a cause, both through congenital or acquired coarctations. So that it was safe to conclude that such factors were pre-disposing moments to renal infection whether by the ascending or descending route. As to the routine adoption of forcing fluids in renal infection, especially of the bacillus colon type, he might appear audacious to take issue with the almost universally accepted notion. Although not wishing to deprecate the value of fluids, certain observations made with the cystoscope had aroused the thought that excessive drinking of water might cause retention in the renal pelvis and thus add to the factors that tended to intensify the dangers of renal infection. Swelling and inflammatory processes near or at the ureteropelvic junction were frequently associated with repeated attacks of renal infection, and during acute exacerbations were productive of retention in the renal pelvis. So that when we cystoscoped cases during an acute attack with high fever, we could demonstrate that the kidneys did not rid themselves of the large amounts of fluid excreted so that an acute hydronephrosis become established. Such nephrosis might contain absolutely clear urine with but a rare pus cell in the specimen; and still evacuation of the retained urine through the catheter resulted in prompt relief. If we gave a large amount of water to these patients and cystoscoped during an attack, he would find that with the catheter in the ureter he would have a rapid intermittent excretion of water, but as soon as the renal pelvis was entered there was an enormous flow, quite out of proportion to the quantity excreted in a given time through the ureter. Mere emptying of the pelvis of the kidney would result in immediate improvement. So that he felt that even the imbibition of fluids might be overdone when it resulted in overdistension of the renal pelvis. The explanation that Dr. Quimby offered for urethral fever, he did not believe satisfactory. For how would he explain the occurrence of fever in prostatectomy patients in whom, with the wound still open, a catheter or sound was passed merely into the posterior *urethra* without entry into the bladder. Surely reflux and back pressure into the ureters should not occur with the suprapubic fistula still patent. There were two types of cases, one in which Dr. Quimby's explanation might obtain, and the other in which absorption through the raw urethra might be the deciding factor. In the first instance, the patient had a chill and fever occurring synchronously with the first attempt to void, and retention of urine was regularly found. Here the possibility of reflux could not be excluded, although usually some urine was passed through the urethra. In the second type, however, retention was *absent*, the patient passes an ounce or two of cloudy, often bloody, urine, and with this symptoms appeared.

Since this might occur without retention with the suprapubic fistula *still open*, it would appear that absorption through the raw posterior urethra was a more plausible explanation for the manifestations. As for treatment, Dr. Beer had given a very succinct outline, but he differed from him in the relative value of lavage. He believed in it if carefully carried out, particularly in the recurrent and chronic cases. A child was brought to him who had had a pyelitis for almost six years. She had never been without pus in the urine, and never more than one month without a chill and temperature. The child was anesthetized and the renal pelves washed out. Improvement occurred immediately, attacks no longer occurred, and the patient was on the road to recovery. Finally, Dr. Buerger called attention to a type of acute suppurative nephritis that was doubtless of hematogenous origin, in which there was a diffuse exudative inflammation with polynuclear intracanalicular and intratubular exudate. These cases might show but little pus in the catheterized specimens, and did not have any urinary retention in the renal pelvis. In the latter regard, they were distinctly different from the usual colon bacillus type of pyelitis or pyelonephritis. Delafield, he believed, had already alluded to this interesting form of infection.

Dr. ALFRED T. OSGOOD said they had all believed that ascending infection took place; how or why it took place was a matter which had been unexplained. There were cases in which the ureter was dilated and abnormal and the bladder hypertonic so that it was easy for the fluid in the bladder to mingle with the fluid in the kidney. To find another way in which this infection took place was most interesting. They always looked for a revelation from Dr. Quimby and they had not been disappointed tonight. They were glad also to have light upon the cause of the catheter

or ureteral chill. It was also important for those who taught to have something to say in explanation of the "back pressure," an expression which they had been using in a rather loose way. In this respect Dr. Quimby's views had helped them very much. He agreed with what Dr. Quimby had said, especially as to the use of water as a means of combatting kidney infection; and what he had said in connection with the physiology of the ureter made it apparent that an abundance of water was indicated. He had hoped they might hear some other explanations, and particularly that some definite light would be thrown on the question of colon bacillus infections of the kidney and their treatment. Personally he was very apt to refer the patient with a colon bacillus infection of the kidneys back to the enterologist and ask that he keep these organisms within their natural bounds. That was the fundamental problem in dealing with colon bacillus infections.

Dr. E. L. KEYES said he need scarcely call Dr. Quimby's attention to the fact that his paper was suggestive. The onslaught he had already suffered had proven the value of his remarks fully as much as anything he could say by way of flattery to him, though he could not fail to add his tribute to what he considered a most illuminating and suggestive paper, which he should now proceed to disagree with as much as I know how. In the first place, Dr. Buerger had stirred him up with his pelvic lavage. He could not believe that a washing out of the kidney pelvis once with any known fluid would destroy bacteria that had been resident in at least the submucosa of that kidney pelvis for six years. He did believe the clinical facts related by Dr. Buerger. Similar clinical facts had been reported by many observers and we had all met them in our own practice; but they were attributable to the mere ureter catherization. The first one to suggest this theory was Dr. Howard Lilienthal who suggested that a badly draining pelvis might have its ureter ironed out by a single catheterization to such an extent that it would relieve the retention. He cannot understand how a single washing would have much more than a carminative effect. In the second place, as to hexamethylenamine, this agent was in some cases just as much the drug for the treatment of renal infections as intermittent catheterization was in the treatment of prostatic retention. They treated prostatic retention in hospitals by preference, either by immediately operating on the bladder to get permanent drainage or by tying in a catheter to get permanent drainage. He was quite satisfied that this treatment was elected because urologists were careless or lazy. If one found a competent trained nurse and had him pass the catheter with sufficient gentleness and regularity one got decompression of the bladder with far less reaction than by retained catheter or operation. Now similar care was called for in the use of hexamethylenamine. In illustration. Dr. Keyes cited a case of pyelitis. A woman twenty-two years ago had her first child and had an attack of pyelitis. He examined the urine himself and gave the hexamethylenamine himself. The temperature immediately fell—whether because of the hexamethylenamine or not—and day by day watching the urine the pus grew less, the bacteria disappeared, and finally the albumin disappeared, the treatment being kept up for about three months. The patient then remained well until this year, with urinalysis from time to time,—perhaps 150 between then and now (no cultures being taken) which showed no pus, no bacteria, and no albumin. This year she had a violent bronchitis and her pyelitis started up again as a complication. Watching the acidity of the urine and giving full doses of hexamethylenamine it was remarkable how one could bring down the amount of pus in the urine. But the action of the hexamethylenamine must be controlled by daily testing the acidity of the urine (and acidifying with acid phosphate, if necessary), and watching the preponderance of pus cells and epithelials (with the microscope, for urine looks just the same whether it is full of pus cells or not). Dr. Keyes questioned whether hexamethylenamine was of any value in the acute conditions associated with fever. There, Dr. Quimby's water treatment was good, and the lapse of time and the grace of God was even better. The urethral chill was the next point; no one knew what the urethral chill was. The urethral chill, as casually described by Sir Henry Thompson, was the reaction following the passage of the sound. Dr. Quimby might hitch that up with his reflux. He wished he would do it.

Dr. ABRAHAM HYMAN said he was interested in Dr. Quimby's ingenious explanation of the ascending route of infection but he hardly thought it would account for many of the cases. Some eight or nine years ago he had undertaken experiments with reference to the action of the sphincter of the bladder before and after prostratectomy. He took normal bladders, those associated with enlarged prostates, and those after prostatectomy had been performed. He made the observations by injecting argyrol and radiographing the bladders. In the normal bladders he did not find a single case in which there was reflux from the bladder up into the ureter. In normal bladders it was generally agreed that unless there was very considerable tension there was no reflux. One would think that in bladders associated with enlarged prostates a reflux would very often be encountered, but the surprising thing was that we did not see refluxes in any of these cases. It was different with a catheter in the ureteral orifice. With the catheter in the ureter one would frequently see a reflux. Tests were made with the ureteral catheter and methylene blue solution. By introducing the blue fluid in the bladder and a meteral catheter in the pelvis, the solution could at times be recovered through the catheter. A recent case brought out in a striking way how careful one must be with regard to the ureteral reflux. The patient was admitted to the hospital complaining of right-sided lumbar pain and the history of a previous kidney operation on the opposite side. The x-ray showed calculi in the right kidney and ureter. The right ureter was catheterized, and from this side cloudy urine was obtained. On the opposite side, the side that had been operated upon, the catheter was passed all the way up to the pelvis and two or three c.c. of urine were obtained containing 1/10 per cent. of urea. The urine from the right side contained 1 per cent. urea, and showed a faint trace of indigo carmine. A diagnosis was made of bilateral renal disease. At operation it was found that there was no kidney on the left side. The only way these findings could be explained was that the urine from the left kidney was a reflux of the bladder urine. As regards pelvic lavage, Dr. Hyman said he was of the opinion that it was not pelvic lavage but drainage per ureteral catheter which was effective in these infections. He thought he had demonstrated that by introducing the ureteral catheter and allowing it to remain in situ for hours at a time, after a while marked improvement had been noted. Dr. Hyman referred to the work of Dr. Kidd of London who had had a very large experience with pyelitis and had noted good results from the use of alkalies. Dr. Kidd had given up the use of hexamethylenamine and claimed that he saved many patients by giving very large doses of alkalies.

Dr. BENJAMIN S. BARRINGER said he wished to speak of pelvic lavage. He agreed with what had been said in regard to the value of this procedure. He cited a case of infection of the kidney in a man who was a bad alcoholic. He had had a chill and was in bad condition. The usual remedies had failed. He washed out the pelvis of the kidney and the man improved. Someone suggested formalin solution. He did not recall the strength of the solution, but this was used on one or two occasions and the man recovered.

Dr. H. F. RATHBUN said he was surprised that no one had spoken before of the use of alkalies. In his experience alkalies were practically specific in colon bacilli infections of the kidneys, in some cases in small doses and in others in large doses, together with copious colonic irrigations. He was also a great believer in pelvic lavage, especially in subsiding cases. He thought Dr. Beer's case was one of stricture of the ureter. He had seen many cases of stricture of the ureter cured by one cystoscopy.

Dr. COLIN L. BEGG said the paper was a very delightful one and stimulated one to think. It had always seemed to him in the treatment of pyelitis, which he had considered to be associated with pyonephritis, that one should differentiate between acute cases and

chronic cases. He had obtained the best results in acute conditions by leaving them locally absolutely alone and treating them systemically. When there was a bowel condition that might be a factor in the infection he forced water and the alkalies in the acute stages, but when the condition assumed a chronic form, whether the case was due to stricture of the ureter or not, it seemed to him that a large number of cases had been absolutely cured by lavage. Also in chronic cases he gave not only hexamethylenamine, but thought he obtained better results by a mixture of hexamethylenamine and benzoate of soda.

Dr. QUIMBY, in closing the discussion, said he felt very much honored by the voluminous discussion. It seemed that none of them were very far from agreement on these matters; it was only in an occasional detail that they differed. As to the point brought up by Dr. Beer, who felt that there was still something to be said for the thesis that infection traveled by way of the lymphatics, it might be possible that infection was thus transmitted, but it was harder to visualize an infection travelling that way than by the reflux he had described. When one spoke of the lymphatics of the ureter he must mean the perivascular lymph spaces in which the course of the lymph, so far as we knew, followed the blood current. He knew of no channels that went the whole length of the ureter up or down, and when a portion of the ureter was resected it would live by its collateral circulation. Therefore he could not feel that the lymphatics took any great part in conveying infection to the kidney, and must take issue with Dr. Beer on this point. As to why one got no infection when he passed a ureteral catheter he did not know, but nevertheless clinical experience bore out that fact. They knew that one often passed a catheter through a bladder infected by bacteria, and when such a catheter was in place a reflux of bladder contents upward might occur. The reason infection of the kidney did not occur in such cases, he would suggest, was that the distending fluid introduced into the bladder was practically always antiseptic, and this might account for the demise of some of the bacteria. Furthermore, it was probable that in the majority of instances in which catheters were passed into the ureter, previous measures had been employed to promote diuresis. In the presence of a copious flow away from the kidney organisms which might have been introduced by the catheter or by reflux were again washed down. As a corollary to his discussion Dr. Beers had asked his opinion as to an apparent specificity of certain organisms to reproduce in second individuals in the same location as they occupied in the primary individual. He referred to the work that had been done and was being continued in Rochester. A patient had an infected kidney, the organisms from this kidney were cultured, the cultures injected into the teeth of dogs and the cavities in the teeth closed by dental measures; subsequently infection occurred in the kidney. That was very astounding. Dr. Beer had asked him to express an opinion as to specific electivity. As an individual he was withholding his judgment. It sounded entirely visionary. He was not yet convinced of the theory of specificity of organisms of which Dr. Rosenow was an exponent. Dr. Oswald had suggested that many renal infections, especially those of the colon type, were due to the intestinal tract. That was undoubtedly true. Everyone who observed patients carefully found that the kidney owed many of its infections to impairment of the intestinal function. It was not an infrequent occurrence to find an impaired kidney following amebic dysentery in the tropics, and milder infectious conditions secondary to ordinary chronic constipation might have a somewhat similar effect. Dr. Buerger had suggested as a possible explanation of the reflux that stimulation of the sphincter was followed by contraction and with this contraction there was a relaxation of the detrusor muscle, thus permitting reflux. Physiologists had shown that where a muscle complex existed, one muscle contracted when another relaxed, but in the case of the sphincter and the detussor each muscle was supplied by a different nerve. The whole problem of innervation was not sufficiently worked out. Their experiments seemed to show that the reflux had been easily produced by other means than stimulation of the sphincter by the catheter; for instance, the introduction of fluid through a fine hypodermic needle passed through the bladder wall. When this procedure was employed the reflux occurred just the same as when the catheter was introduced. He might not have made himself clear in claiming that a reflux might be responsible for the crisis of fever in a patient who had had a prostatectomy. Following prostatectomy the bladder had been out of commission for varying periods of time, roughly two weeks. There was during this period no impediment to the outlet from the bladder. Before the rise in temperature occurred it was easy for the urine to leave the bladder by the suprapubic opening. As this opening contracted and as resistance thus increased, the bladder became distended. Then for the first time since it had been opened it emptied its contents by increasing the intravesical pressure. As it contracted some of its contents entered the kidney by reflux, carrying infection and causing a chill. Regarding the mechanism of the chill subsequent to the use of either sound or catheter, it made no difference which was used. It was the passage of anything over the trigone or even distention of the bladder, in fact anything that stimulated a hypertonic bladder to contract caused reflux. He did not think the chill was due to the raw surface, because that had been present all the time. As to the treatment, he would like to know whether Dr. Keyes gave hexamethylenamine without forcing fluids.

Dr. KEYES replied that he did.

Dr. QUIMBY said he should then begin using this agent with more faith than he had been doing. As to the giving of water, of course this could be overdone, but he felt very strongly that it was rather rare to find a patient in whom the excessive ingestion of water had been harmful. He had yet to see a patient who had had too much water. Recently he had had a patient in the hospital suffering from diabetes insipidus who was taking 35 or 40 liters of water a day without detriment to his kidneys. The case Dr. Hyman had cited was very interesting. It made one feel that it was very necessary to have a pyelogram of these cases. Dr. Kidd of London had written an excellent book on renal infections, and one he would have liked better if it had not contained so much vituperation. Dr. Kidd indorsed the treatment of pyelitis with alkalies. This was not new, for alkalies had been used for a long time, especially for pyelitis in infancy. The pediatricians had found the greatest benefit to come from the use of alkalies in pyelitis in children. If after a period of treatment with alkalies the infection was not conquered, changing the reaction to the acid side might have the desired result. Though of the greatest benefit in childhood, this method of treatment had a somewhat analogous result in adults. The basis of this treatment was that every bacterium grew best at an optimum point of hydrogen ionization according to the individual strain of the bacterium. Too much acid or too much alkali might destroy it.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

MEDICAL EXAMINERS OF WYOMING.

Cheyenne, June 6-8, 1921.

(*Continued from page* 129.)

SURGERY.

1. Give the symptoms, diagnosis, and treatment of hemorrhage from the middle meningeal artery.
2. What is surgical shock? Discuss its signs, symptoms, prevention, and treatment.
3. Differentiate cholecystitis, appendicitis, and salpingitis.
4. Differentiate the coma from injury, cerebral hemorrhage, uremia, opium poisoning, and acute alcoholism.
5. Give the diagnosis and treatment of perforated gastric ulcer.
6. Describe the technique of an operation for indirect inguinal hernia.
7. Give the diagnosis and treatment of fracture of the internal condyle of the humerus.
8. Given a tumor of the female breast, how would you

diagnose probable malignancy, and what surgical treatment would you adopt?

9. Discuss the constitutional reaction and treatment of burns.

10. Differentiate dislocation of the head of the femur from fracture of the neck of the femur, and outline treatment for each.

11. Discuss the etiology, diagnosis, and treatment of gastric carcinoma.

ANSWERS.

SURGERY.

1. MIDDLE MENINGEAL HEMORRHAGE. "*Symptoms:* When not obscured by some other cerebral lesion, the typical symptoms are—(1) temporary concussion; (2) a lucid interval of a few minutes to a few hours; (3) gradually increasing drowsiness ending in coma. If the hemorrhage is rapid or there is cerebral laceration as well, there may be no interval of consciousness. In addition there may be, from pressure on the motor area, twitching of the corresponding parts followed by paralysis. The pupil on the injured side becomes first fixed and dilated, the other following. When the coma is well marked the pulse is slow and full, and the breathing is stertorous. When the brain is lacerated there are alternating tonic contraction and relaxation of the muscles supplied from the injured area. The *Diagnosis* is difficult, unless the symptoms are typical, and they seldom are. *Treatment* consists in trephining, removing the blood-clot, and stopping the bleeding. A flap is turned down, and a trephine hole made over a spot 1½ inches above and behind the external angular process exposes the anterior branch. After the blood-clot is removed the bleeding-point is searched for and tied; if it is not seen, more bone must be clipped away. If the bleeding comes from a canal in the bone, it may be stopped with gauze, sponge, or aseptic wax. If the brain then expands, the bone may be replaced and the wound stitched up without drainage; if not, the bone must not be replaced, and the wound should be drained for twenty-four hours. The posterior branch can be reached by a hole made just below the parietal eminence."—(*Aids to Surgery.*)

2. *Shock* is the name given to a sudden and general depression of the vital powers; due to some strong stimulation (such as injury or emotion), acting on the vital centers in the medulla and producing vasomotor paralysis. Shock is *primary* when the symptoms appear promptly; it is *secondary* when the symptoms don't appear for several hours (often observed after railway accidents, intoxication, etc.)

Symptoms of shock.—The blood pressure is lowered considerably; the pulse is very compressible, rapid, short, and often difficult to count; the respirations are quick, sighing, and irregular; the skin is cold, clammy, and pale; perspiration may be profuse, but other secretions are diminished; body temperature is subnormal; muscles are relaxed; and reflexes are diminished.

Treatment.—Place the patient in the recumbent position, with the head low, apply warmth to the body, administer a stimulant, and give a hot saline infusion; morphine, hypodermically, may be necessary for the relief of pain. Adrenalin solution is administered into the arterial system.

In surgical operations *shock may be largely prevented* by reassuring nervous patients, keeping the patient warm, the avoidance of the excessive catharsis, and semi-starvation that often prevails before operation, the administration of strychnine and atropine before operation, the avoidance of delay and undue handling of parts during the operation, prompt checking of hemorrhage, and by using the utmost gentleness. With a view to preventing the passage of exciting afferent impulses, Crile advocates "blocking" of the nerves by the injection of a 1 per cent. solution of eucaine into their substance on the proximal side of the field of operation.

3. In *cholecystitis* there are pain, tenderness, and muscular rigidity over the area of the gall-bladder, also fever, rapid pulse, vomiting and leucocytosis. In *appendicitis*, the rigidity and tenderness are lower down, and the fever and leucocytosis are not so pronounced at the beginning of the disease; the pain is of sudden onset and is localized in the right iliac fossa; there is abdominal rigidity, chiefly of the right rectus muscle; there are usually fever, nausea, vomiting, and constipation.

Salpingitis is diagnosed by: A dragging sensation in the neighborhood of the affected tube; colicky pain, which is increased on exertion or even on standing; abdominal tenderness; menstrual disorders, as amenorrhea, metrorrhagia, dysmenorrhea, menorrhagia; dyspareunia; there may be septic symptoms and peritonitis; sterility generally ensues. On examination there will be found a fullness in Douglas' pouch and one or both lateral fornices; in these latter will be felt either the tubes, distorted and possibly adherent, or a sausage-shaped tumor, which is very painful; the uterus is retroverted or retroflexed, and may be bound down by adhesions; there may be an intermittent expulsion of pus accompanied and preceded by a burning pelvic pain.

4. The following table (from Eisendrath's *Surgical Diagnosis*) gives the diagnosis:

COMA FROM INTRACRANIAL INJURY.	APOPLECTIC COMA.	UREMIC COMA.	ALCOHOLIC COMA.	OPIUM POISONING.
Deep coma; may have history of onset after fall or injury. Evidence of fracture of vertex or base.	Deep coma; sudden onset. If any injury, only a scalp wound.	Deep coma. Slow onset unless convulsions have preceded the coma.	Can be aroused by supraorbital pressure unless very profound.	Can be aroused unless very deep.
Pupil dilated on side of lesion. Choked disc.	Pupils unequal or dilated. Contracted in hemorrhage into the pons.	Albuminuric retinitis.	Pupils normal or somewhat dilated.	Pupils contracted to pinpoint size.
Pulse very slow.	Pulse full and slow, often arteriosclerotic high-tension pulse.	Pulse rapid.	Pulse more rapid than normal and full.	Pulse rapid, may be irregular.
Respiration slow and stertorous.	Respiration slow and irregular.	Respiration frequent and irregular.	Regular respiration.	Respiration very slow—may be 6 to 8 per minute.
Temperature higher—101.	Temperature higher on paralyzed side, but lower in rectum.		May be low or normal.	
Urine normal or contains trace of albumin.	Urine contains trace of albumin, but may be same as in uremia.	Urine shows albumin, casts, and low urea percentage.	Normal.	Normal.
Hemiplegia on opposite side to that of injury. If contusion of brain is also present, may have generalized convulsions.	Hemiplegia with convulsions on one side.			

5. *Acute perforation* of a gastric ulcer is announced by "sudden violent pain in the epigastrium, which often radiates to the back, up to the left shoulder, and down

into the right iliac fossa. There are great tenderness, marked rigidity of the abdominal muscles, and shock of varying severity. There may be absence of liver dulness and movable dulness in the flanks. In about half the cases the stomach contents are vomited, but rarely is there any blood. In 10 per cent. of the cases there is no previous history of indigestion. There may be a leucocytosis.

"The *treatment* is immediate abdominal section, any existing shock being combated while the preparations for operation are under way. The incision is made in the middle line above the umbilicus, the perforation closed by a double row of Lembert's sutures of silk without excising the ulcer, the abdominal cavity cleansed with salt solution, and a gauze drain passed down to the vicinity of the perforation. If there is a generalized peritonitis, a second incision should be made above the pubes and the pelvis drained. In cases in which suture is impossible, the opening may be closed by the omentum, a loop of intestine, or gauze packing. The possibility of a second perforation should never be forgotten. Some surgeons perform gastroenterostomy at the time the perforation is closed, a practice which must necessarily increase the mortality, which, at present, is between 40 and 50 per cent."—(Stewart's *Surgery*.)

6. For *inguinal hernia* many operations are practised, but Bassini's is the most useful. "An incision 2½ inches long is made over the inguinal canal, exposing the structures of the cord and the external oblique. The external oblique fibers are split from the apex of the external ring to expose the canal. The sac is found, opened, emptied of its contents, and isolated from the structures of the cord up to the internal ring. If the hernia is irreducible, the intestine is freed and returned to the abdomen, omentum being ligatured and removed. The neck of the sac is then transfixed and tied with silk, and the fundus removed. The stump returns to the abdomen, three or four stitches are then passed through the conjoined tendon and arched fibers of the internal oblique and transversalis muscles above, and the deep part of Poupart's ligament below. These are tied behind the cord. The external oblique is then sutured in front of the cord, leaving just sufficient opening for it to pass through without pressure. The skin is then closed by a continuous stitch. The patient should be kept in bed for three weeks, and should not exert himself for at least six weeks. If the wound has suppurated, or if the case is one in which the abdominal muscles are weak, it is advisable that a light truss should be worn afterward for six months."—(From *Aids to Surgery*.)

7. FRACTURE OF THE INTERNAL CONDYLE OF THE HUMERUS. "This may be intra- or extra-capsular. The *extra-articular* variety consists of a mere displacement of the tip of the condyle (or epicondyle), and in young people is probably a separation of the epiphysis, which remains distinct from the shaft till the age of eighteen or nineteen years. The small fragment is drawn a little downwards by the muscles attached to it, and the fracture is readily detected by the usual signs; it may be associated with injury of the ulnar nerve. The *intra-articular* form is the more common, and extends from the condyloid ridge to the trochlear surface, implicating the coronoid and olecranon fossæ. The fragment is displaced a little upwards and backwards, the ulna usually accompanying it, so that on extending the elbow the olecranon appears unduly prominent, the lower end of the humerus projects anteriorly, and the forearms is slightly adducted (cubitus varus). The ulnar nerve may also be injured in this case.

"*Treatment.*—Flexion of the forearm will sometimes suffice to restore the fragment to its normal position; but this must be demonstrated by radiography. The limb under such circumstances is placed in an angular splint, and massage and passive movements are started early. Failing reposition by flexion, operation must be undertaken, and the fragment secured in position by wire or screw."—(Rose and Carless' *Manual of Surgery*.)

8. The two breasts should be inspected, and any abnormal appearance should be noted. Then the physician, standing behind the patient, should palpate the breast, noting the location of the lump, its size, shape, and consistence; this should be done by making firm pressure with the flat of the hand. Then the condition of the skin should be observed, to see if there is any abnormal attachment to the breast or tumor; note if the nipple is retracted; observe also if the breast is freely movable on the chest wall. The condition of the lymphatic glands in the axilla and above the clavicle should be observed. The main object of the diagnosis is to differentiate between a benign and a malignant tumor. In well-marked cases this is not difficult. *Benign tumors* grow slowly and gradually; as a rule, they are freely movable, firm, round, and the nearer they are to the skin the softer they are; they are not encapsulated, and do not cause retraction of the nipple or enlargement of the neighboring lymphatic glands. *Malignant tumors* grow rapidly, are movable in the early stages, but later become adherent to the skin or pectoralis major muscle; they are hard and immovable; the nipple is retracted, and the axillary lymphatic glands are enlarged; pain is a symptom; cachexia may be noticed, and there may be metastatic growths. But there is a large group of *doubtful cases*, which can only be diagnosed by a microscopical examination of a piece of the tumor.

The patient should be advised, if the tumor is *malignant* (and it is not an inoperable case), that prompt, thorough operation is absolutely necessary. If the tumor is *benign*, the tumor alone should be excised. In *doubtful* cases it is well to imagine the growth malignant until it is proved to be otherwise. If the breast is removed and the tumor is proved benign, the woman has lost a breast; whereas, if it is not removed, and the tumor should prove to be malignant, she will lose her life. The best plan is (with the consent of the patient) to prepare for a radical operation, excise a piece of the tumor, have it examined microscopically, and if it proves to be benign, remove the tumor; if it is malignant, remove the whole breast and neighboring lymphatic glands.

9. BURNS. *Constitutional reaction:* The chief is shock. This depends chiefly upon the extent of the burn (rather than the depth) and also upon its situation; there may be congestion of the internal organs.

Treatment: "The constitutional effects must be treated first. Put the patient in bed with warm blankets, without disturbing the clothing over the burnt parts. Administer brandy by the mouth or rectum, and morphine to deaden pain, and prevent further shock. Saline infusion into the loose subcutaneous tissues or into a vein may be tried if the pulse is very small. Ether and strychnine may also be used.

When the patient reacts to these, the local injuries may be treated. For burns and scalds of the first and second degree, ointments are the most soothing. Powders such as zinc oxide and bismuth are also cooling and keep the part in good condition. For burns which destroy any part of the true skin, ointments and antiseptics are dangerous, the one on account of sepsis which occurs beneath it, and the other from the danger of absorption of the poisonous drug. Picric acid in 5 per cent. solution may be painted over shallow burns, as it forms a skin, and is to some extent antiseptic. Boric acid, as powder or in moist lint, is one of the best dressings, provided it is changed very frequently. The part may be treated with peroxide of hydrogen daily in addition. When granulations have formed, the part is treated as an open wound with aseptic dressing. All dead pieces of skin should be snipped off at each dressing as they die, and as soon as possible skin grafts are applied. Subsequent contraction of scars is treated by plastic operation."—(Buchanan.)

10. In fracture of the neck of the femur, the head of the femur will be found in the acetabulum; in dislocation, the acetabulum will be empty, and the head of the femur will be found elsewhere, *e.g.* on the dorsum of the ilium. In the fracture, crepitus *may* be elicited; in the dislocation, never. In the dislocation, there is inversion and a fixed position of the limb, both of which are absent in fracture. In fracture there is shortening and outward rotation.

The *treatment* in *intracapsular fracture* is: "Rest in bed with the leg between sandbags. Weight extension. If any signs of congestion of the lungs appear, the patient must get up and walk on crutches. Never disimpact, and always examine such cases very gently for fear of disimpaction." In *extracapsular fracture:* "Always disimpact in young, healthy patients when

there is much displacement. Long Liston's splint from the axilla to below the ankle, maintained from rotating by transverse bar. Limb is pulled on by weight attached by strapping and bandages well above the knee. Hodgen's splint is often more effectual than Liston's in reducing the deformity. Maintain splint and extension for six weeks." In *backward dislocations:* "Flex the knee and thigh in position of adduction. Adduct the thigh and evert simultaneously. Bring the leg down straight. Lift up, bend out, roll out. Direct traction of the thigh forward in a line at right angles to the body." In *forward dislocations:* "Thigh is flexed in a position of adduction. Adduct the thigh and then invert it. Bring the thigh down straight. Lift up, bend in, roll in."—(*Synopsis of Surgery.*)

11. *Gastric carcinoma* is very frequent and may involve any portion of the stomach, but most often affects the pylorus (60 per cent.), often starting from an old ulcer. It is more frequent in the male, and is unusual before the fortieth year. It may be of any variety, but is usually scirrhous in nature. It always begins in the mucous membrane, infiltrates the remaining coats of the stomach, and finally invades the surrounding organs, particularly the liver and pancreas. Perforation of the stomach occasionally occurs. The lymphatic glands, particularly those along the lesser curvature, are invaded at an early period, and distant metastases also may occur. The disease is fatal in from a few months to two years or longer, according to the nature and situation of the growth.

"The *symptoms* at first are those of chronic gastritis or nervous dyspepsia, *i.e.* interference with the appetite, thirst, a sense of fulness, eructations, nausea, vomiting, and usually constipation. Pain in the epigastrium and back may be an early symptom, but is sometimes absent in even the later stages; it may be increased or relieved by food. If in spite of careful medical treatment, symptoms of this character persist for a month or longer, and are associated with a progressive loss of weight, in a patient past forty, one should always suspect carcinoma, and advise an exploratory incision, which is the most reliable diagnostic measure. This is the time for successful surgical treatment. Among the later symptoms are coffee-ground vomit, cachexia, palpable tumor, ascites, distention of the superficial abdominal veins, swelling of the legs, femoral phlebitis, and jaundice owing to involvement of the common bile duct. Metastases in Douglas' pouch or in the ovaries may occur. The laboratory methods of diagnosis are unreliable in the early stages, and are of the greatest value only when the growth is inoperable. At this time examination of the gastric contents shows an absence of free hydrochloric acid and an increase in the amount of lactic acid, both of which conditions may be found in other gastric diseases. Microscopic examination of the stomach contents may show small portions of the neoplasm and the Oppler-Boas bacilli, and these bacilli and occult blood may be found in the stools. The motor and absorptive powers of the stomach are lessened. Blood examination shows a reduction in the hemoglobin and an absence of the digestive leucocytosis. Finally may be mentioned the possibility of making a diagnosis by the esophagoscope, introduced into the stomach; by transillumination with an intragastric lamp, showing a tumor on the anterior wall; and by the *x*-rays, after the ingestion of an emulsion of bismuth, the tumor appearing as a marked indentation in the outline of the stomach. The situation of the growth has a marked influence on the symptoms. When the cardiac orifice is involved, the symptoms are those of stricture of the esophagus, and a tumor cannot be felt. When the growth is at the pylorus, the symptoms are those of dilatation of the stomach, and the tumor is more apt to be palpated. When neither orifice is involved, vomiting may be absent, and a tumor may or may not be felt, according to its size and situation.

"The *treatment* is exploratory incision, and if possible, removal of the growth by partial or complete gastrectomy. Kocher claims 8 per cent. of permanent cures from operation. If the cardiac orifice is involved, gastrostomy will be indicated for the purposes of feeding. In operable cancer of the pylorus gastroenterostomy may be performed, in order to allow the passage of food into the bowel. When the entire stomach is hopelessly invaded, the only possible measure which promises relief is jejunostomy, or the making of an artificial opening into the jejunum in order to feed the patient."—(Stewart's *Manual of Surgery.*)

(*To be continued.*)

BULLETIN OF APPROACHING EXAMINATIONS

STATE	NAME AND ADDRESS OF SECRETARY	PLACE AND DATE OF NEXT EXAMINATION
Alabama*	S. W. Welch, Montgomery	Montgomery...July 11
Arizona*	A. Martin, 207 Goodrich Building, Phoenix	Phoenix.....April 4
Arkansas		Little Rock....May
California	C. B. Pinkham, Sacramento	Los Angeles....Feb 13
Colorado	David A. Strickler, Empire Building, Denver	Denver.....
Connecticut*	R. L. Rowley, Hartford	Hartford.....Mar. 14
Delaware	H. W. Briggs, Wilmington	Wilmington....June 20
Dist. of Col'ba	E. P. Copeland, Washington	Washington...
Florida*	W. M. Rowlett, Tampa	Tampa.....June 12
Georgia	C. T. Nolan, Marietta	Augusta.....May 31 Atlanta.....June 7
Idaho*	Paul Davis, Boise	Boise.....April 5
Illinois	F. C. Dodds, Springfield	Chicago.....
Indiana	W. T. Gott, Crawfordsville	Indianapolis...
Iowa	G. H. Sumner, Des Moines	Iowa City.....
Kansas	A. S. Ross, Sabetha	Topeka.....Feb. 14
Kentucky	A. T. McCormack, Louisville	Louisville.....
Louisiana	E. W. Mahler, New Orleans	New Orleans...
Maine	F. W. Searle, Portland	Portland.....
Maryland	J. McP. Scott, Hagerstown	Baltimore.....
Massachusetts*	W. P. Bowers, 1 Beacon St., Boston	Boston.....Mar. 14
Michigan	B. D. Harrison, 205 Whitney Building, Detroit	Ann Arbor.....June 13
Minnesota	T. McDavitt, St. Paul	Minneapolis...
Mississippi	J. D. Gilleylen, Jackson	Jackson.....
Missouri	C. E. Enloe, Jefferson City	
Montana*	S. A. Cooney, Helena	Helena.....April 4
Nebraska	H. H. Antles, Lincoln	Lincoln.....June
Nevada	S. L. Lee, Carson City	Carson City...May 1
N. Hampshire	C. Duncan, Concord	Concord.....Mar. 9
New Jersey	A. MacAlister, Trenton	Trenton,.....June 20
New Mexico	R. K. McClanahan, E. Las Vegas	Sante Fe.....
New York	G. M. Wiley, Univ. of State of New York, Albany	New York.... Albany.....Jan. 23 Syracuse..... Buffalo.....
No. Carolina	K. P. B. Bonner, Moorehead City	June
No. Dakota	G. M. Williamson, Grand Forks	Grand Forks...July 4
Ohio	H. M. Platter, Columbus	Columbus.....
Oklahoma	J. M. Byrum, Shawnee	Oklahoma City.April 11
Oregon	R. E. Watkins, Portland	Portland.....
Pennsylvania	N. C. Schaeffer, Harrisburg	Philadelphia...
Rhode Island	B. U. Richards, Providence	Providence....
So. Carolina	A. E. Boozer, Columbia	Columbia.....June 27
So. Dakota	H. R. Kenaston, Bonesteel	Pierre.....
Tennessee	A. B. DeLoach, Memphis	Memphis..... Nashville.....June Knoxville.....
Texas	T. J. Crowe, Dallas	Dallas.....
Utah	G. F. Harding, Salt Lake City	Salt Lake City.
Vermont	W. Scott Nay, Underhill	Burlington.....Feb. 14
Virginia	J. W. Preston, Roanoke	Richmond.....June 20
Washington*	F. J. Dibble, Olympia	Olympia.....
W. Virginia	W. T. Henshaw, Charleston	Charleston.....
Wisconsin	J. M. Dodd, Ashland	Milwaukee.....
Wyoming	J. D. Shingle, Cheyenne	Cheyenne.....Feb. 13
National Board.	V. S. Rodman, 1310 Medical Arts Building, Philadelphia	

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Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

RINGWORM. By JOHN P. TURNER. 62 pages with 8 engravings. Price, $1.00. Published by F. A. Davis Company, Philadelphia.

PROCEEDINGS OF THE FIFTEENTH ANNUAL MEETING OF THE ASSOCIATION OF LIFE INSURANCE PRESIDENTS. 214 pages. Published December, 1921.

THE ROCKEFELLER FOUNDATION ANNUAL REPORT, 1920. 386 pages with illustrations. Published by the Rockefeller Foundation, New York.

STATE OF NEW YORK—CRAIG COLONY, 28th Annual Report. 72 pages with illustrations. Published by the Craig Colony.

KOMPENDIUM DER LICHTBEHANDLUNG. By H. E. SCHMIDT. 114 pages with 49 illustrations. Price 60 M. Published by Georg Thieme, Leipzig.

LEHRBUCH DER HAUTKRANKHEITEN. By MAX JOSEPH. 258 pages with illustrations. Price, 130 M. Published by Georg Thieme, Leipzig.

Medical History.

CRITICAL AND DESULTORY REMARKS IN THE LIGHT OF THE HISTORY OF ANCIENT MEDICINE.*

By JONATHAN WRIGHT, M.D.,
PLEASANTVILLE, NEW YORK.

IV

It is not he who happens to announce a truth unsupported by the modern scientific tests for truth who has discovered a new fact, but he who confirms it by observation and experiment. This seems a fair statement of the arrogant way modern science has of claiming the inheritance of antiquity as its own. Another phrase may be found for the spirit which animates much of the method of science. Discovery is made by earnestly setting out with a definite end in view and resolutely pursuing it through the mazes of the laboratory and the clinic until, perhaps at the very back door of life through which he is about to slink away, the agnostic or the atheist, who thirsts after the immortality he denies, finds at last he has won it, with the fact he has dug up, the shining truth which illuminates his passage to the grave. I do not mean to say that this method has not been successful or that there is not a very efficient and useful force supplied by the acceptation of this stern code of science, but is this all there is to say about the method of the acquisition of knowledge? It is difficult to write of views such as these without letting just a little flicker of inward disrespect arrest outward attention if one holds the view that this is not the only way or the chief of the ways knowledge is acquired and lest the earnestness of the critic betray him into extravagances, it is best to acknowledge at once there are very many methods and very many different steps in most methods of acquiring it, but science should be alive to them all and not confine itself to a code whose chief claim to recognition is that it stimulates industry, for after all without that no method of science will be efficient.

Let us bar the subconscious for a moment—the unconscious if the psychologists will, though I deplore their word for it. As a man tosses across a hot or a bumpy pillow in the night, a flash of recognition shoots across his consciousness, alive to something that had not come to the surface before. As he loafs along a winding path the light strikes the tip of a tiny wave, a shadow passes over the foliage of distant trees. He carries something back with him to his laboratory he had not had before; whether it came out of the conscious or the unconscious, we need not stop to inquire, it comes out of both, probably, at the most unexpected and insignificant impulse of sense. I am not going to bring in Newton and his apple, for that incident has been a dismal failure, thus far, in the way of arresting the attention of men of science, as one may see by the concern exhibited as to whether it was a true story or not. Now it is of no consequence whether the laboratory is one of books or one of test tubes and microscopes, it may be the clinic if you will. Nor does it make any difference whether it is today or tomorrow or ten years later when he emerges in a zeitschrift with his treasure and shows it to all men. "Ah," brays the ass contentedly to the elephant, "it is knowledge only after you have made us know it." A hundred truths emerge thus every day, many of them buttressed by irrefragible proof as valid one day as a thousand days afterwards when they are recognized by the long eared, but ninety-nine of them perish for a thousand years, until some other restless sleeper or wide awake walker gets the flash again in a more propitious moment for the demonstration of that particular fact. However that is a little aside from the present interest though intimately connected with the main purpose of these papers.

Where did he get it? He knew he had it when he turned over in bed, he felt he knew when he stubbed his toe in the path. I am distressed to find I am up against the unconscious again, for I know so little about it, but I am aware that some man of science, perhaps most of them if they but knew and condescended to think of the problem in this light at all, would say: "Very likely, but the laboratory fed the unconscious or this is mere mysticism." I shall have to let it go at that, for there is so much of the time I am unconscious of the unconscious, that I must give way to those conscious of it all the time and allow no link to escape them in it between the laboratory and the zeitschrift. As for the rest, that is as God wills or as chance may have it and thus we escape mysticism. "Voila, justement ce qui fait que votre fille est muette." All the laboratory did was to offer evidence to his fellow men, who nine times out of ten don't see it—usually never do. Perhaps he has no evidence he knows will convince them, as is my trouble with the unconscious, and lets it go at that also, but he knows. His discovery was made elsewhere, it was only confirmed in the laboratory if, as is the exception, any one paid any attention to it at all. Any sort of proof goes as confirmation if it has to do with the fad in medicine fashionable for the moment. The trouble is that then it is confirmation usually of something which is not the truth. You will find the evidence of this in the thousands of tons of the zeitschrifts which repose in dust and neglect upon the innumerable shelves of libraries. Now there is something wrong with the method of science that makes a truth true in one decade and neglected in the next or even denied, and forgotten altogether in the next century. A learned man wept in public ten years ago (or is it quite ten?) with joy that we had discovered a cure for syphilis. Turn the pages of this number of this journal or of another at your elbow, and see how much of this rapture is left. You need not be very old to remember the early tuberculin days, not to speak of cancer cures put forth with less confidence in the rise of the later phases of the science of serology. Are we to ignore such things in a discussion of the results obtained with the methods of science promulgated with such a flourish now for several generations? Men of science are justified in their reluctance to admit such a human thing as medicine among the sciences since they demand a detachment man will not yield where his emotions for humanity are so easily excited, but we cannot here be drawn into a discussion of conchology to show that some of the objections to the methods of science observable in the study of man are to be found also in the study of shells.

*See MEDICAL RECORD, November 26, 1921.

V

How are we to explain the way progress has exhibited itself in the evolution of medicine? Our researcher may read Aristotle or Paracelsus or Pasteur from title page to index and he absorbs a thousand truths, but none of them ever comes home to him as that flash of recognition, to which I have alluded, before he seeks his laboratory. They may stare man in the face for a thousand years and he takes no note of them. They are the inheritance of humanity, but until the environment calls them forth to fruition they lie dormant in the subconsciousness of civilized man, and they come forth in that moment of inspiration some god, the ancients would say, secretly instills into the hero's heart. It is not in books alone that that inheritance lies stored, we know, and I hope I shall be permitted space to refer to that also, but they contain a very large share of it, and just in so far as they are made to form an integral part with the present environment in the education and daily experience of medical men will the fruition be greater and the progress of medicine along lines of usefulness more marked. The atomic theory, despite the manifest absurdity of supposing that energy can work or the mind can conceive its workings without a conception of the minute divisibility of matter, lay dormant from the time of Democritus, in spite of Lucretius and its sporadic recognition throughout the ages, until a hundred years ago more or less; so we may say of the hypothesis of the ether. We have split the atom, it is true, but the inevitability and much of the suggestiveness of the atomic theory has always lain, yet for the most of the time unrecognized, at man's door ever since coherence of thought began. Fundamentally, as the only kind of matter, it is inconceivable, for the ancients as well as we had to invent an impossible ether to fill in between the granules of matter, yet so insistent has become the demand that we hear now and then of a granular ether, but what we are to do for filling between the granules of that I have not learned. With ultimate truths the mind of man is powerless to deal, but with pragmatic reality, if that is the term to use, in apposition to "das Ding an sich," he must deal and the atomic theory must be as much a reality to him as his walking stick or crutch. So with the other facts of which the history of science is the repository. The ether disappears in some of the interpretations of Einstein's theory, but it has thus far been indispensable.

Contagion, in its modern conception, is a corollary of the minute divisibility of matter. Without the latter how could we have gotten away from the solitary devils of disease? It lingered in the mind of primitive man and his conception, lacking sufficient breadth to make room for more than one cause of anything, his reasoning, was inevitable. "If I succeed in putting the devil of smallpox into my fellow men I will necessarily get rid of him myself and be cured." The imagination fails to grasp the magnitude of woes unnumbered that reigned in this world under such a conception of disease as that. We see how long before the truth was demonstrated in a laboratory, and if we went through all the pages of history we would see how frequently it appeared unrecognized. Practically it had for a thousand years put an end to this vice of the mind before it was fully understood and developed in its modern bearings. Let no one think that an assault on the dominating ideas as to the methods of science in the past generation or two renders the critic for the moment blind to the utility of laboratories in the broad sense of the term, where new ideas are subjected to the test of experience and new theories are worked out. But the laboratory and its routine as engines for the evolution and application of human energy is quite another thing from the origination of thought or its diffusion. In this respect, like all other tools with which man labors, they soon become dulled instruments. Pedantry and the rigidity of form creeps into processes and into language, modes of thought and forms of its expression. When a specialty in or out of the laboratory adopts a special lingo, outlandish and unfamiliar terms of technique in thought and its expression, it has opened the first door that leads to degeneration and decay and has closed behind it that avenue which best serves the convenience of the thought of the rest of mankind. A momentary halo may be thought to encircle the head of him who speaks a language his fellow men only dimly follow, but the days of the primitive medicine man and the tribal wizard are past. He who thus cuts himself off from the thought and sympathy of common people has lost much of his right to exist.

VI

Seneca even was not the first to say:[1] "Especially in swampy places there are minute animals that grow, which the eye cannot follow, and they all float through the air into the body through the mouth and nares and there they produce stubborn diseases." Varro, Cicero's learned friend, had also published[2] the fact a hundred years before, and perhaps they both had it from the Greek, but I will not hunt up the references there. I avail myself of the researches of Ilberg[3] for the Latin authors, but the more ancient evidence has met my eye also. Barring the still moot question of air contagion, does anyone want anything more concise and plain today than Seneca's words two thousand years ago? It would weary the reader, if not the writer, to seek out the number of times the assertion comes to light even in the literature which has survived. Now, was it Pasteur or Lister or Koch or some other modern man who first told his fellowmen the truth as to the bacterial etiology of disease? Is there then no engine of the origin of truth outside the boiler room of a laboratory? Or is it not only a half truth to say that there is some fault with the method of science in the diffusion of truth? It certainly is not the whole truth, because we know pretty well that it is necessary to change man's atmosphere, almost his nature, before anything so radical in the way of such a change in his thought can be brought about. He is blind in his lateral field of vision. His vision is blurred for the nearest objects. They lie in his path unseen for ages and on his blindness hangs the fate of empires and the miseries of humanity. Is it the laboratory that can make him see or the hand which thrusts before his eyes the pages of history? Neither probably very clearly, but one without the other is, in the long run, hopeless, and the stack rooms of libraries will continue to bulge in vain with forgotten zeitschrifts. With both possibly we can do better. It is worth trying, at any rate, in our

age and generation to add the laboratory of history to the laboratory of science.

How did this idea concerning bacterial etiology in the middle of the nineteenth century or a little later happen to spread over the whole earth this idea of Isocrates or of some older nature philosopher from whom he had it? Because the evidence was produced in the laboratory? Not at all; the clinical evidence, the circumstantial evidence, the most reliable evidence of all, the converging of a hundred indications all pointing to one thing, had existed always, had been always lying at man's door, and yet our historical era opens and runs for hundreds of years without man in the mass being fully aware of contagion at all. So if we attempt to impeach the laboratory man for his shortcomings we must apply the same censure to the historian of science, we must exhibit impartiality between camps so hostile as science and history as literature, but after all we cannot help feeling the real trouble is with the mental makeup of the "damned human race," as Mark Twain insisted.

A sort of dumb, instinctive blind feeling existed that caused man in the later centuries to flee from the face of the sick man. During the great plagues at Rome, Galen, the physician, and Marcus Aurelius, wisest of men, greatest of rulers, indoctrinated with the purest stoical philosophy of the Greeks, fortified with the iron valor of the Roman, fled from the devastation of armies by plagues and from the stricken cities, but nothing like any coherent idea of contagion arose. Boccaccio placed his ladies and cavaliers in gardens of delight and had them while away with erotic tales what short time they might steal from death by the plague in Florence; like sheep they resigned themselves to the providence of God.

As to sheep, Virgil had the fact of contagion, perhaps from Varro or Volumnella, when he wrote:

"Nec mala vicini pecoris contagia laedent."[4] Yet not until the last quarter of the nineteenth century after this was the stupid mind of man at last opened to the fact in all its bearings, and how? Not by using the highest, the rationalistic faculties of his mind, but he was swept away toward it on the wave of a frequently unreasoning enthusiasm for the particular and frequently misleading evidence furnished by the laboratory. There had lain the declaration of Seneca and his forerunners, there had existed a century or so back the statute, and for a short time the practice in Naples of regarding phthisis as contagious, the pages of history were full of accounts of the appalling evidence furnished by countless plagues, all in vain. We pass on for some future age to explain this marvel, with the remark that the time must be ripe, the environment right, for the germination of a truth, and that is all I am doing here, but I refuse to regard the laboratory as its sole revelation, although I am not sure but that we are cajoling ourselves with a paraphrase and a parable when we talk like that—about the "germination of truth," I mean. It has significance probably only in an age absorbed and warped with a contemplation of evolutionary theories. When mysticism is to the fore again, we may be sure another explanation, doubtless another paraphrase will be sought. At any rate let us leave our minds open to the claims of Seneca, Nero's friend, and Antrechau in 1721, as well as to those of the Japanese Kitasato in 1894, as being the discoverer of the plague. As for me, I am impressed with the idea that the man who first conceived the bacterial etiology of disease probably was a light sleeper at night or wandered in the woods in the day. The sons of men did not hearken to him, thus crying in the wilderness, but that is another story, a problem interesting and useful in itself whose existence is only to be elicited by a study of the pages of history, but whose solution baffles and confounds us.

VII

Incidentally I have driven my argument through the preceding lines with references to well-known historical facts which demonstrate how for thousands of years the truth stares man in the face and is not recognized, how it lies dormant in the traditions of a civilization, in the subconsciousness of generations, forced on him unawares, and because I believe it is easier to approach the sympathies of the human mind in incidental fashion so as not to arouse its combative tendencies, I take for the moment a roundabout way to illustrate how forms in which truth is framed for one age are utilized for truths, quite different, perhaps antagonistic, in another age. An illusion has just been made to the influence of the environment on the diffusion of what for a decade or two we are pleased to call truth, and elsewhere it has been urged that no one in the effort to accomplish it in current literature has the right to shock the sensibilities and tire the attention of one's readers by carelessness in the form of one's discourse. Cicero put the matter thus: "It may be true that one may have the right idea and that one cannot properly express it, but for any one to put his cogitations in written form, when he cannot so arrange and illustrate them as to attract the reader by feelings of pleasure is to impose rudely on the leisure of man and the rights of literature."[5] One may justly claim, and so far as I am concerned he has a claim on my sympathy, that we are not all born poets, or what is more rare, few of us are good prose writers, yet we feel we, too, have a message for the world, but to make no attempt, to flout the demand as silly and unreasonable, is the mark of a boor and a fool. It is for us to do our best, sink beneath the wave of literary mediocrity if we must, and we probably will, but swimming the best we can. To pretend there is no water at all or it is not deep enough for the leviathan of science, or it is all dry land and one is privileged to go as one pleases, is not the kind of excuse to which the world turns a sympathetic ear.

The scientific journals are trimming their edges to lighten the labor of their readers. It is not the wielding of the paper knife that causes fatigue or calls for assistance, it is the heaviness of the page. When paper was cheap and labor ill paid, any scribbler in science may have felt privileged to deface it and exploit the pressman's toil. It has to be paid for now out of slender salaries and wails innumerable are going up through all the broad domain of science in every land. Is it possible that out of this welter, in which as a best seller Charlie Chaplin rides triumphant on the wave and the Herr Professor sinks heavily beneath it, some good may come? Is it possible that men of science will be so chastened by the cost of print as to think it worth while to write well? The radical has in the past

sought support in the ranks of science for the uncouthness and rudeness of his propaganda, and after all turns on them in the gutter press and calls them high brow. But whether a man is a high brow or has an octagon front, if he expects to diffuse the propaganda of science or that of radicalism he must be mindful of the warning the master of form gave to the Roman world of his day. It was necessary to heed it then, it is now and it always will be, despite the danger of pushing it to preciosity and the pedantry of mere rhetoric. Propagandists in the name of altruism will not find as efficient a weapon in eccentricities of phrase and palling antithesis as in obeying the rules laid down by the ancients, when form was as necessary and as assiduously cultivated in their writings as philosophy.

VIII

This stability of form in art, or that part of art which is stable, is grounded in the emotions of the human soul. Certain cadences like those of Horace, "Pallida Mors aequo pulsat pede pauperum tabernas regumque turres,"[4] or of Virgil, when in the thunder of his line you hear the onrush of cavalry, drive the thought as well as the emotion into the consciousness of the reader. His heart swells and he sees the fact with a vividness quite foreign to the convictions one absorbs from medical science. It is no less illustrated when you take that one step from the sublime to the ridiculous. In another connection I have just employed his name and fame before, but you will find the tricks of form of Charlie Chaplin in the comic figurines dug up in the soil of ancient Greece and Rome. The art of the comedies of Aristophanes, of Molière, the first nighter who is on the outlook for something new and original applauds in the farces that fill the stage of modern Rome, Paris, New York. You will find neither tragedy nor comedy in the scientific essay, no appeal to form or art on the part of those who never tire in their efforts to drive into the people or their colleagues the truths they cling to while they last, nothing but exaggeration on the public platform, which revolts those who know, and flaming posters hiding the landscape from those who are tired.

There are two incidents which lately have come under my notice illustrating much of the substance of the matter with which we have been busy. Much entertained with the conversation of a waiter in a roadside restaurant on a country road in his reply to the apologies of a rather disheveled guest for his personal appearance, I was struck with the apothegm which fell from his lips:

"Many a noble heart beats beneath a dirty shirt." Not long after in the Tusculan Disputations I found Cicero quoting[6] from some ancient Greek:

"Wisdom often dwells beneath a dirty shirt." (Saepe est etiam sub palliolo sordido sapientia.)

A doctor, moved by experience of long standing with neuropsychiatric cases, wished inscribed over the door of an insane asylum an apothegm he ascribed to Galen. "*Employment* is Nature's best physician." Now, Galen did not say that. Galen said, and it was expressed still better by Celsus: "Exercise is Nature's best physician"—or something to that effect. Hippocrates said: "Nature is man's best physician." Cicero said philosophy is man's best physician in mental disorders, but also in teaching him to bear physical misfortunes and the sorrows and trials of life, but none of them ever said employment, or useful occupation, is a cure for anything. That came in with the rise of modern democracy, vaunting the nobility of labor. We have draped our word "employment" with a meaning not inherent at all in "exercise" or "philosophy." That is commonplace, and Galen was commonplace and so was Cicero, except for the marvels of his speech and his prose, and Celsus did not rise much above them in the quality of his mental fiber. Hippocrates' saying, however, has preserved a jewel of medical lore that is immortal, of the utmost significance and value and as near to absolute truth as we ever get in this life. It is true now and has been true for all ages, but that philosophy or that exercise is Nature's best physician are only half truths, sayings to be surrounded by limitations and pricked with numerous exceptions. Something of the same cast of phrase has englobed them as well as the apothegm of Hippocrates.

The apothegm of my friend of the restaurant had been altered long before he got hold of it, but I judged he was tinctured by tradition rather than by the culture of ancient learning, for I heard him relating also with much satisfaction how he had found water in the ground with a peach tree crotch. The Lord knows where he got his classical allusion. It had been altered, perhaps hundreds of years ago, because "sapientia" no longer dwells in the heart in our conceptions of physiology, no longer beneath a shirt, dirty or otherwise, though the poets still figure noble sentiments as dwelling in the heart. For the early Greek thought also dwelt there, but now it dwells beneath the dome of the calvarium. The syntax, however, was too good to be wasted, the elevation of the pressing thought of democracy has borrowed a phrase for a meaning foreign, if not to foreign thought, at least to Cicero when he used the form. In its old use it found all its weight in the example of Socrates, Diogenes, Caecilianus, with whom dirt and philosophy were not mutually antipathetic. In our day under the same phrase, the dignity of labor, the modern catchword (labor may be dignified for all I know), works its way to the front with the twist given to something supposed to be from Galen which certainly was entirely foreign to ancient thought. The nobleman under the dirty shirt, "a man for a' that and a' that," has put in his claim in ancient form. How the spirit of the present dominates antiquity and defaces the chronicles of history is apparent even in the pages preserved to us, and how much the foundations of ancient life are revealed in the analysis of modern interpretation is quite as apparent.[8]

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The Second International Congress of the History of Medicine.—This Congress met at Paris, July 1-6, 1921, and a summary of its transactions appears in *Le Progrès Médical* for July 16, 1921, xlix, 29. The president was Singer of Oxford and delegates were present from France, Belgium, Great Britain, Italy, Czecho-Slovakia, Poland, Holland, Switzerland, Spain, Portugal, and other countries. Plantier read a paper on an epidemic of demonopathy in the Middle Ages, Giordane one on the history of catheterism, and Tricot-Royer one on the hospital history of Antwerp from the year 1000. Chauffard, Sr., recapitulated the arguments in connection with a faculty thesis of 1812; Belolhavek read a paper on the graduate theses of the University of Prague in the XVII century; Singer presented a MS. which may have been written by Guy de Chauliac; Raymond showed medieval pictures of syphilis and leprosy; Villaret and Moutier gave a historical account of intravenous medication; Basmadjian spoke of the medical history of Armenia, Van Andel of the medical men of Molière's comedies, Siegrist of medical astrology of the XV century, Jorge of typhus, epidemic encephalitis, and grip in the XVI century, Menetrier of medical anecdotes and incidents of the same period, taken from the tales of Eutrapel; Wickersheimer read a paper on the miraculous cures attributed to Cardinal Pierre of Luxembourg, Schrutz on Bohemian medicine of the XVI century, Guiart on the obstetrics of Ancient Egypt, Neveu on the "Holy City," Epidauros; Bugiel gave the history of Polish medicine; Herve gave an account of a man who once took *per os* virus from a rabid dog; Jeanselme spoke of the dietetic regimen of convents. The preceding are taken at random from a long list of papers presented during the Congress. The third session will take place next year in London.

The Patron Saints of Medicine.—It is not surprising that few medical men can give the names of the patron saints of their craft. The great Index-Catalogue of the Surgeon-General's Library at Washington, now in its third series, has not a single title bearing on these characters among its subjects, which means that no medical man has ever devoted a book, pamphlet, or journal article specifically to them, or at least that no such work is in the Surgeon-General's library. Garrison's superb "History of Medicine" does not mention them. In the large German work, "Biography of Prominent Physicians of All Countries and Ages" we find but three or four lines. "Damianus and Cosmas, two brother physicians, martyred in the persecution of Diocletian. Patron saints of surgeons." In the little work of Harnack on Christian Physicians, we find a paragraph on the brothers. They were the patrons of physicians and apothecaries. Their day is September 27. Tradition states that they came originally from Arabia but studied medicine in Syria and practised, among other places, at Aegea in Cilicia. In the great persecution of the Christians in 303 A.D., they were tortured and finally beheaded. Miracles are said to have been performed at their graves. Alleged relics of their existence are in Münich.

By far the best account of them in medical literature is found in Richer's "L'Art et la Médecine." It occurs on pages 396 and 397, with two illustrations numbered 257 and 258. It is stated that the brothers have been memorialized many times in religious art. Often they are represented as caring for patients, or in the act of amputating a leg. One of the most remarkable of these paintings is in the Louvre. It is a fragment by Francesco Pesello, otherwise known as Pesellino, who lived from 1426 to 1457. In the Museum of Offices, Florence, are portraits of the two saints by Bicci di Lorenzo (1350?-1427). Each holds in his right hand a small dressing forceps and in the left a box of ointment, indices of their profession. At the foot of the painting proper are two vignettes, one of which shows the two saints removing from a patient a leg which has turned black. Richer reproduces this painting in his figure 257. In the second painting, which is reproduced in figure 258 and which is now in the Ancient and Modern Gallery, Florence, the artist is Beato Angelico, who lived during the period 1387-1455. The two saints are supporting a black leg, evidently the seat of dry gangrene, which they are making ready to remove. The patient, confident of the power of the saints, has crossed his hands on his breast in resignation.

Much further information could doubtless be found about these worthies in religious literature and various works on saints and martyrs. Churches have been named for them, and there is one in the city of Rome in which the memorial day of the saints is duly honored. They are also the patrons of the pharmacists.

History of the University of Paris.—This institution dates from a period so remote that its beginnings are lost in obscurity. It originated in the neighborhood of the cathedral and was under the charge of the bishop and a special chancellor. The professors gave instruction in their own homes and only when these quarters proved insufficient did special buildings become necessary. In the XII century the celebrated Abelard, when he became a professor of the University, did much to advertise it and students flocked to him from all quarters. The residential district of the students became the Latin quarter. Four colleges composed the University in the early days, known respectively as the College of France, the College of Normandy, the College of Picardy, and the English College. The actual consolidation took place about the middle of the XIII century, and the college thus became the model for all similar institutions. The Renaissance, instead of causing a boom in university activities, had the opposite effect, and the institution began to lose prestige, becoming distinctly a back number. Other schools sprang into existence —the Polytechnic, Superior Normal, School of Oriental Languages, etc. Napoleon did something to rehabilitate the original University. The *École de Santé* became the medical college, and he created faculties for law, sciences, and letters, but they evidently were not successful as great metropolitan teaching bodies. It was not until the Third Empire that the period of university reform set in. The four faculties were grouped anew into a formation which also included the Superior Normal School, but left out the College of France. This arrangement persists at the present day.—*Gazette des Hôpitaux.*

Medical

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Original Articles.

CHRONIC ARTHRITIS.

By LEONARD W. ELY, M.D.,

SAN FRANCISCO, CAL.

THE whole subject of chronic arthritis is a most confused one at the present time, and to the superficial observer the confusion seems well-nigh hopeless. To one, however, whose medical memory goes back for a quarter century the advancement of knowledge is evident, and the future is bright. Twenty-five years ago these cases were almost all grouped under the title of "chronic rheumatism," with one or two forms, such as tuberculosis, beginning to emerge from the obscurity. Since then a number of other forms have been identified and described as the result of patient investigation, but at every stage of the undertaking progress has been impeded by the publication of a mass of immature theory and high sounding speculation.

The first difficulty which confronts the student is in the matter of classification. The confusion here is so great and the difference of nomenclature so marked that in reading an article one has difficulty in identifying the disease the author is trying to describe. Thus "arthritis deformans" means different things to different people. Nichols and Richardson, who have done remarkable work in the pathology, under the name of "proliferative arthritis" describe a disease which Goldthwait, approaching the subject on its clinical side, calls "atrophic." Nichols and Richardson's "degenerative arthritis" is Goldthwait's "hypertrophic," and both correspond to the German "arthritis deformans." The English, on the other hand, call the former disease rheumatoid arthritis, and the latter osteoarthritis. Latterly some observers, especially Roentgenologists, have adopted the term "destructive" arthritis for any arthritis that shows rarefaction of the bone and irregularity of the cartilage, a particularly unfortunate term for it can be applied to every known form of the disease. Perhaps the most meaningless and unfortunate name of all however is "metabolic" arthritis. Health is metabolic equilibrium, disease is disturbed metabolism. To say, therefore, that an arthritis is due to disturbed metabolism is to say that it is due to disease.

The most prevalent method of classifying the arthritides is partly etiological, partly pathological, and partly clinical. Cases of which the cause is known are described, and then the cases of unknown cause are classified and named on a basis of some characteristic which the observer deems most important. This is the cause of all the confusion, and is untrustworthy and unscientific. It is possible to classify on a definite anatomical basis; and, until we are able to classify on an etiological basis, this is undoubtedly the best way.

All cases of chronic arthritis can be divided into two great classes or types, differing from each other not only in their pathology and clinical behavior, but also fundamentally in their appearance as revealed in the Roentgen picture. They differ also sharply in their etiology. In order to avoid making the present confusion worse, and in order to avoid the introduction of a new name into an already overburdened terminology, it is well simply to number them, and to label them Type I and Type II.

The first type includes the frank infections—tuberculosis, syphilis, typhoid, pneumococcus, coccidioidal granuloma, and diplostreptococcic arthritis from infection in the tonsil, in the deep urethra, and possibly in other organs as well. It includes Still's disease, and that form of multiarticular inflammation described by various writers as proliferative arthritis, atrophic arthritis, rheumatoid arthritis, etc. The fundamental pathological lesion of this type is a proliferative inflammation in the synovial membrane, in the bone marrow, or in both. It results in complete recovery, or in a fibrous or bony ankylosis. The Roentgen rays show rarefaction of the bone, thinning of the cartilage, and no new production of bone.*

The second type forms a well-defined clinical, etiological, and pathological entity, sharply differentiated from the preceding type. By the Germans it is known as arthritis deformans, by Nichols and Richardson as degenerative arthritis, by Goldthwait as hypertrophic arthritis, by the English as osteoarthritis, and by others as metabolic arthritis, senile arthritis, etc., etc. It is the chronic rheumatism of the elderly, and, when occurring in the terminal interphalangeal joints is known as Heberden's nodes, and is often erroneously considered a manifestation of gout.

The cause of this type of arthritis is unknown. Its primary pathological lesion is a necrosis in the bone and marrow in the immediate vicinity of the joint, but as yet there is no reliable evidence of the recovery of any organisms either from these areas of necrosis or from the joint fluid. As the *result* of this necrosis in the marrow, new bone is laid down at the joint surface, and especially at the lines of attachment of the capsule. This gives rise to the well-known spurring and lipping, so prominent in the *x*-ray picture and in the pathological specimen, and is responsible for most of the names be-

*Even in syphilitic arthritis new bone is not laid down in the immediate vicinity of the joint.

stowed upon the disease. The joint becomes mechanically damaged by the deformed and distorted bone ends, but the disease practically never results in either bony or fibrous ankylosis, except in spinal involvement. The new bone formation is permanent. Hence a joint once the seat of this disease never returns to normal, even if symptoms disappear.

TYPE I.

Pathology.—The members of this group differ in the details of their pathology, as they do in the details of their clinical manifestations and of their Roentgen picture, but in their essentials they are the same. One member of the group is found most often in the synovial membrane, another in the marrow, and a third almost always affects both, if it affects either. Tuberculosis may be taken as an exemplar of the group. In it the pathology seems to work out most beautifully to its logical termination.

The prime pathological feature of this type is a proliferative inflammation in the marrow or in the synovial membrane, or in both. The inflammation may start in either and may remain in it indefinitely, or at any time it may spread from one to the other. As the result of the inflammation in the marrow, the bone becomes thinner—rarefied. When the inflammation is more severe the bone dies, either in small pieces—bone-sand—or in larger pieces—sequestra. The buttress of bone beneath the articular cartilage is partially or completely absorbed, and the new granulation tissue, depriving the cartilage of its nutrition,* either perforates it, or spreads out in a layer under it and kills it in a greater or lesser extent. The infectious process is now in the joint, the synovial membrane is infected, and the other bone or bones of the articulation may be attacked by the inflammation spreading in under the margin of the cartilage.

When the disease starts in the synovial membrane, it may remain confined to that tissue, or it may spread into either or both bones, under the margin of the articular cartilage, and thus become a myelitis, as well as an arthritis. The synovial membrane may be soft, villous, and succulent, or it may be dry and fibrous. In the former case the joint will probably contain fluid of a greater or smaller amount; in the latter, the joint cavity may be obliterated by the fibrous adhesions between the bones, and between each bone and the synovial membrane. Hence arises the fibrous ankylosis, which later may be converted into bony, but is not often converted unless a pus infection be added.

Symptomatology.—Pain, local sensitiveness, and limitation of motion are common to all the members of this group. Increase of local temperature, muscular spasm, and muscular atrophy are usually present, especially in the severer forms, and with much bone involvement. With some, *e.g.* tuberculosis, deformity may be extreme, with others, *e.g.* syphilis, it is not prominent. As a rule the joint is swollen, and this swelling is always in the soft parts. *There is never any new production of bone outside the normal level,* in the immediate vicinity of the joints in this type of arthritis, in marked contrast to the second type. In the slow dry cases the joint may be shrunken, and its cavity may be replaced by a mass of dense adhesions; in other cases it may contain fluid, serous, flocculent, turbid, hemorrhagic, or purulent, as the case may be. I think it is a mistake to regard any kind of fluid as pathognomonic of any special disease.

Each member of the group has its peculiarities, which enable us to recognize it in the majority of instances, but in none of them is the recognition positive without the aid of the microscope. Thus, tuberculosis is almost always uniarticular, and usually has a slow, more or less progressive, steady course, while arthritis from tonsillar infection is often multiple, may be intermittent or remittent, and often involves the proximal interphalangeal and the metacarpophalangeal joints in the hands. Arthritis from a focus in the deep urethra may simulate the latter closely, though it rarely attacks the finger joints. It may, however, involve the metatarsophalangeal joints, and then is sometimes accompanied by a superficial osteomyelitis of the calcaneus—the so-called gonorrheal periostitis or exostosis. Syphilitic arthritis has no especial peculiarity which I ever have been able to discover. The theory that a syphilitic arthritis is always painless is not correct. It may be painless, especially if the synovial membrane alone is involved, but it may be just as painful as some cases of tuberculosis.

The Roentgen rays show a rarefaction of the bone in the immediate vicinity of the joint, with an irregularity of the joint line, and, owing to the disappearance or thinning of the cartilage, an approximation of the bone tissue of the two bones entering into the articulation. By the distribution, extent, and location of the rarefaction the skilled radiographer will usually be able to distinguish the member of the group to which the case belongs, but here again the identification is never positive, and the experienced operator rarely pretends that it is.

Diagnosis.—From what has been said it follows that an exact diagnosis cannot be made without the aid of the microscope, that is between the various members of the type. From the second great type, this type can be distinguished by the absence of new bone at the joint line. All the joints of this type look alike. A swollen joint is simply a swollen joint. Leaving aside the various laboratory tests, the diagnosis is made usually upon the history, the course of the disease, and the examination of the rest of the patient's body. Besides these we have one very important means—too often neglected—the therapeutic test with antisyphilitic treatment.

Treatment.—The prime indication for treatment of this form of arthritis is to remove the cause when it can be found. Tonsils that give rise to suspicion should be removed. Those which most often give trouble are the tough, buried, fibrous tonsils in patients who perhaps have not had a tonsilitis for many years. Lesions in the deep urethra should be cleaned up. Often a vesiculotomy will be necessary. Antisyphilitic treatment will work wonders in appropriate cases.

Tuberculosis cannot be treated on this principle. We have no means of eradicating the primary tuberculous focus, and we are forced to adopt other

*The cartilage is supposed to derive its nutrition in some unknown way from the marrow beneath it.

measures that cannot be described here. Suffice it to say that the main indication is to deprive the joint of function, either temporarily in the child or permanently in the adult.

There is a multiple progressive form of arthritis whose cause is unknown, which will defy all our attempts at treatment. In spite of everything we do, the joints become involved one after the other, deformed in flexion, until the patient becomes hopelessly bedridden, and dies after a longer or shorter time from some intercurrent disease, such as pneumonia or nephritis.

Type II.

Etiology.—This has always been the mysterious form of arthritis, not only in its etiology, but also in its pathology. Like every form of bone and joint disease this also has been ascribed to trauma, and, although the changes in and about the joint cannot possibly be explained on this hypothesis, most authorities still ascribe to trauma the leading rôle in the etiology. The disease does not result in laboratory animals when the bone and cartilage of their joints are injured.* Not only this, but the extensive changes in the interior of the bone cannot owe their origin to trauma, for the bone and marrow in this situation are well protected from every form of trauma except fracture. What these changes are we shall see presently. They have perhaps never been appreciated, but a knowledge of them is necessary if one would understand the disease.

In spite of the claims of several investigators, all the evidence at our disposal points to the conclusion that the disease is not of bacterial origin. With the facilities of a university laboratory at my disposal I have never been able to get a positive result from cultures taken from the bone marrow and from the joint fluid. Not only this, but the bone and joint changes in this form of arthritis are entirely different from those occurring in disease whose bacterial cause is known. We may, of course, take refuge in such vague terms as toxins and disturbed metabolism, but this is equivalent to admitting our ignorance. Disturbed metabolism is the definition of disease; metabolic equilibrium is health.

Although all the evidence is against the bacterial nature of the disease, yet the whole appearance of my specimens indicates that an infection of some sort is at the bottom of it. The most promising line of investigation, and one which my associates, Doctors Reed and Wyckoff, are pursuing with me is that the offending organism is a protozoon of some sort, most probably the *Amœba histolytica,* which is domiciled in the gastrointestinal tract and gains access almost invariably to the circulation through diseased alveolar processes of the jaws at the roots of decayed teeth. In two previous papers† I have called attention to the causal relationship of alveolar infection to this form of arthritis, and have heretofore ascribed to the alveolar osteomyelitis a direct causative rôle, but I have been obliged to abandon this theory, partly because one or two patients with the disease had perfectly sound teeth. Alveolar infection is probably one link in the etiology—a contributing cause.

Pathology. — To comprehend the pathological changes in this type of arthritis it is necessary in the first place to remember that all changes in the bone are the result of previous changes in the marrow. To speak of an inflammation of bone is a misnomer. The inflammation is in the marrow. The bone changes are secondary to this. Again, there is no such thing as an inflammation of cartilage. The cartilage simply reflects and suffers from inflammation in the subjacent bone marrow, and, to a lesser extent, from inflammation in the synovial membrane, that is, at and near its periphery. Chondritis, ostitis, and osteochondritis are impossibilities.

I have a number of excellent specimens of this type of arthritis in my possession, and I think that a study of them justifies the statement that the primary pathological change is a necrosis in the marrow in the immediate vicinity of the joint. What the cause of this necrosis is we do not know. We infer that it is an infection, though all our attempts to recover organisms have been fruitless. Depending, perhaps, upon the age of the process, these areas appear as sequestra, or as cysts. In what we take to be the late cases, areas are found on section to consist of fibrous tissue containing larger and smaller cysts. I have the head of one femur which consists of little else than dead bone and marrow, and this specimen is interpreted as coming from a comparatively recent case.

Various observers have noted the presence of cysts of the bone in this type of arthritis, but have not attached much importance to them. I believe that careful search will always reveal them, and that their presence can often be detected in the *x*-ray plate.

All the changes in the joint tissue probably result from the primary necrosis. They are principally as follows: New bone is laid down about the necrotic areas, but especially in the region immediately beneath the articular cartilage, as if to wall them off from the joint. This results in a layer of dense bone immediately beneath the cartilage—"eburnation." New bone is also laid down at the periphery of the joint cartilage, giving rise to the spurring and lipping so characteristic of the disease. The joint cartilage becomes calcified, and then wears away, leaving the underlying bone bare. This bone then becomes polished and ivory like, and grooved in the line of joint motion.

The synovial membrane, with any form of irritation, becomes thickened and villous. One does not see the succulent, lymphoid synovial membrane of the first type of arthritis, but a loose-meshed fibrous tissue containing more or less fat. These joints are often called dry, because they creak and grate on motion, but often they contain free fluid.

As the result of the bone formation, and of the disappearance of the cartilage, the ends of the bones become more or less distorted. They no longer fit, and their bearing surfaces are rough. The joint is a damaged machine, and, although the bone ends are not united either by fibrous tissue or by bone, a partial ankylosis, or interference with motion, re-

*Ely, Leonard W., and Cowan, John Francis: Bone and Joint Studies, I. Stanford University, California, 1916. Published by the university.

†Ely, Leonard W.: (*a*) The Second Great Type of Chronic Arthritis, *Arch. Surg.*, 1920, v, 1, 158. (*b*) The Great Second Type of Chronic Arthritis; Further Studies, *Calif. State Jour. Med.*, 1921, v. 19, 415.

sults. Bony union, however, may occur in the spine.

Symptomatology.—The symptoms are those of a low-grade chronic arthritis. As a rule the pain is not as great as in an arthritis of the first type, and practically never are the symptoms acute. The sensitiveness to pressure, so often seen in the first type, is absent. The deformity is not as great. Muscular spasm and muscular atrophy may be present but are not so prominent a feature. The average age is greater. The patient is usually elderly, and the disease never occurs before the third decade of life. The joint creaks and grates on motion. Arterial sclerosis is a frequent accompaniment. Evidences of decay about the roots of the teeth are present, or vacant spaces indicate previous alveolar infection that has necessitated the extraction of the teeth. The anatomical changes of this form of arthritis are permanent, and a badly damaged joint will often cause symptoms long after the cause of the damage has disappeared.

When the disease occurs in the spine it usually manifests itself by pain referred to the region from which come sensory impulses over the nerves entering the cord at the same level as do those of the diseased joints. The pain is thus a true referred pain, and is not caused, as is popularly supposed, by any pressure on the spinal nerves as they emerge from the foramina. This class of cases is usually diagnosed as sciatica, lumbago, brachial neuritis, radiculitis, myalgia, fibrositis, etc., but any obscurity is easily cleared by a Roentgen picture of the spine, which will show the characteristic lipping and spurring of the vertebral bodies.

When it occurs in the spine the disease is usually more or less widespread, and several bodies will show the lipping. Elsewhere, although the symptoms may be confined to one joint, radiograms of other joints will often show in them also the characteristic changes.

Diagnosis.—The patient is usually middle-aged or elderly, and presents evidence of alveolar infection about the roots of his teeth. Films of his jaws show small abscess cavities. The muscular atrophy, increase of local temperature, muscular spasm, deformity, and swelling of the soft parts, common in an arthritis of the first type, are usually absent. The joint may possess a considerable range of painless motion, and usually creaks and grates. With a little practice one can differentiate the two types fairly well by a physical examination, but the diagnosis can be made absolute by the Roentgen rays. The film will show the new bone at the lines of insertion of the capsule—the so-called lipping and spurring, even when evidences of bone absorption are marked in the heads of the bones. There may be some cause for confusion in the finger joints, for here bone absorption dominates the picture, but in an arthritis of the second type the terminal interphalangeal joints are the ones to be involved, rather than the proximal interphalangeal and the metacarpophalangeal joints, as in type I. The terminal phalanges are in semiflexion and lateral deviation.

Treatment.—The first indication is to remove the **focus of infection from** about the roots of the teeth. If this be done early the pain may subside entirely, and the joint may return to a state approaching normal, though it must always be remembered that the anatomical changes are permanent and will never disappear. Even in more advanced cases extraction of the teeth is usually followed by an improvement, and the patient may get along in comfort with his damaged machine, as one may go slowly over good roads on the level with a rickety motor car, but the distorted joint is always vulnerable to sprains and will give trouble when it is used much.

The pain is best treated by heat in some form, perhaps reinforced by hydrotherapy. Dry heat will usually give the best results. When the disease is in the joints of the extremities, the so-called Bier treatment, passive congestion, often makes the patient more comfortable. For some unknown reason I have seen patients improve after the injection of a foreign protein.

The above remarks are not founded upon a few weeks' observation, nor are they evolved from my inner consciousness by abstract theory. The ideas are quite simple of comprehension, and, with a little practice, can be easily employed, but it seems to me that when anyone starts to treat a joint, he bids good-by to his intelligence and his judgment. No treatment is too fantastic to repel, and to this day the medical ward of the usual hospital reeks with oil of wintergreen. As far as its effects on arthritis goes, oil of wintergreen applied to the wall paper is probably just as useful as applied to the skin.

Perhaps the most pathetic delusion in treatment is the dietetic. The pendulum swings back and forth, first meat free and then carbohydrate free. At present, harking back to the old Salisbury diet of 40 years ago, the latter seems to be the more popular. Diet, of course, has a very real importance in the treatment of an arthritis caused by an infection in the tonsil or at the roots of the teeth, for anything which disturbed the digestion would quite naturally make the infection more active. Other than this, diet plays no part. When one's knowledge of a joint is confined to its external appearance, one can easily be fooled by pseudoscientific camouflage, but if one will take the trouble to cut these joints up, one will often be compelled to admit that one does not know, but never that the extensive bone and joint changes are caused by too much potatoes and bread, and can be cured by eating less of them.

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TREATMENT OF CASES OF ULCERATIVE COLITIS.

By ANTHONY BASSLER, M.D.,
NEW YORK.

THE purpose here is to present matters of etiology and diagnosis, the employment of diet, the value of transduodenal lavage and dye solutions, and instances in which these had been employed.

Leaving out of consideration ulcerated colonic conditions due to tuberculous, syphilitic, amebic and *B. dysentericus* infections, there still remains what in practice represents the larger proportion of cases the etiology of which has never been clearly settled upon. Perusal of the medical records following the Civil and Spanish-American wars shows that many of such cases existed for years. Unfortunately in the first war little worth the while was known of these conditions, but in the later war better work was done in investigating these states of the lower small and the large bowel. Since 1916 there have been a number of such disorders among the World War soldiers who are now in civil work, and these have been added to by people who have lived in the East (Asia, Philippines, India, etc.) either as tourists or workers in missionary and other fields. Added to these are not a few, sometimes inhabitants of the northern States, but most often those of the South, who have developed the condition. Thus the incidence of this disorder is not so uncommon. Rather uniformly the cases are characterized by long continuance of the condition and rather hopeless results from the ordinary methods of treatment, namely rest, simple dieting, castor oil, opium, lead, bismuth, and other medicaments to which "tincture of time and esence of patience" do not seem to be sufficiently significant factors for results.

Up to the present, 92 such cases have been seen by me in private practice. These range over 8 years of time and occur in 9,500 records, showing an occurrence of .095 per cent. of all cases seen. It is probable that this percentage is fallacious as regards all gastrointestinal cases met with, because most of my cases are intestinal disorders rather than preponderately gastric and in this sense the percentage may be higher than occurs in the average way. On the other hand many such cases occur among the poorer people and thus would be met with in clinic and hospital practice, and, because of the writings of Gant and others, they were considered surgical and treated in that way rather than occurring in a medical practice. Thirty-seven cases have been seen by me in which irrigation methods following cecostomy, apendicostomy, and ileostomy had been carried out, the condition being only symptomatically improved during the irrigations and frank symptoms returning after a few months or a year's time. These are not discussed in this article or included in the percentage offered above.

Catarrhal and simple ulcerative processes are met with in children and those of young and middle adult life. The ulcers are present in both the small and large intestine, but more numerously in the latter. The early lesions seen are minute, round ulcers with very slight undulating edges and confluence of several small ulcers may be seen when the conformation would be irregular. The very special feature of this lesion is its superficiality, for apparently it involves only the mucosa and generally not too much depth in it. This probably accounts for the long-standing of the disorder without cicatricial formation, which may occur if the mucosa is involved to the basement membrane. There is usually much congestion of the bowel seen by proctoscope, tendency to bleed, irritability, and often a diminution in caliber, probably due to round-cell infiltration of the gut wall. Of course, diarrhea, fluid stools with blood, mucus, and pus, with generally a reduced state of body represent the common clinical picture seen.

Careful laboratory work in most of these continues to confirm my report made on four cases, namely that the inflecting organism is probably a *B. coli communis*. These can gain the tissue (submucosal infection of Adami) and flagella are present in many of the infecting forms met with. Injected into the peritoneal cavity of rabbits, guinea pigs and cats the organism is fatal in about four days, one of the latter, however, living to the ninety-third day. It is definitely clear that this *B. coli* is more definite pathologically than the usual forms of *B. coli* met with in normal human and animal intestinal tracts. It can be proven that serums from these cases agglutinize much higher dilutions than from innocent forms. This organism does not correspond to the Shiga or the mannite fermenting types, yet they also are not possible of biological differentiation from ordinary forms of *B. Coli*. Either they are definite organisms of the *B. coli* group or a *B. coli* of high pyogenic virulence, strongly hemiparasitic in nature, and from which the aggressive production is marked and against which the body in susceptible individuals fails to resist local tissue infection. I have ventured a designation of it as *B. pseudo-dysentericus coli*. In the study of scrapings from the lesions and study of the gut contents it is probable that other denizens of the gut may act specifically or symbiotically with them. Among such may prominently be mentioned

the *B. aerogenes capsulatus*, *B. pyocyanus*, and *Streptococcus fecalis*.

Diet.—Various types of diet have been employed, and in the majority no definite type of diet seems especially helpful. In the study of the records, however, two features in dieting have given service in many. One is a diet high in protein, and the second is (even with the diarrheic condition) to consider the patient as constipated and use anti-constipation additions. The high protein diet itself has often reduced the irritation in the gut without further treatment, and the same may be said of the anticonstipation diet which results, instead of in more movements, in the cleansing of the canal and fewer movements, and those of better character, during the course of twenty-four hours. Types of such diets are the following:

High Protein Diet.—The diet is a temporary one. Take mostly meats—all forms of beef, with the exception of cuts from the shoulder, kidneys, and liver. The same pertains to lamb. These meats should be fresh and taken in a broiled or roasted state. Mutton is permissible but no pork nor veal.

You may take any kind of fish cooked as above, and to which boiled is added, with the exception of shad roe and shell fish.

You may eat eggs in any form.

Any form of cooked, fresh vegetables that are green, such as spinach, beet tops, celery, etc., and any of the salads with French dressing very low in vinegar, may be taken.

Butter and whole milk are allowed, together with any form of simple cheese of the cream variety, such as Philadelphia or Neufchatel.

Eat as much gelatine foods as possible.

Oatmeal and rolled oats are allowed.

You may have bread or crackers made of gluten or rye flour.

Lentils and dried peas are permissible.

There is no objection to an occasional orange, pineapple, or strawberries.

The best drink for you is chocolate or cocoa.

All kinds of fermented milks may be taken—such as kumyss, matzoon, etc.

Anticonstipation Diet.—Measures to encourage your bowels to move in a normal way are the following:

Begin by taking three of the bran gems during the course of the day, and if you cannot get them, you may take in place of them a good-sized dish of Pettijohn bran, or from one to two tablespoonfuls of wheat bran mixed with oatmeal or shredded wheat biscuit for breakfast.

Bran gems: Mix 2 cups of bran, 1 cup of flour, 1 teaspoonful of soda, 1 teaspoonful baking powder, and 1 teaspoonful salt together. Add two-thirds cup of molasses. Add buttermilk enough to make a stiff batter. Melt 1 teaspoonful each of butter and lard together and add last. Bake in buttered muffin pans, in slow oven, for about 45 minutes. Note: A few seeded raisins may be added.

If the above does not move your bowels, retain the bran method which you are employing, and as an additional method take a dish of stewed prunes cooked with milk, sugar or honey, or molasses, at the evening meal or before retiring.

If the foregoing two methods are not efficient, take the prunes at the evening meal and a tablespoonful of petroleum jelly, or vaseline, before retiring. With the institution of this you are to take from three to six glasses of water during the course of the day, in the interval between meals, on arising and before retiring.

If then your bowels are not moving, add a few senna leaves to the prunes which you are taking, these being put in at the time of stewing.

If still your bowels do not move, drop the use of the bran, both in the biscuits and at breakfast, and substitute a handful or ½ oz. of finely cut agar-agar, eaten with cream and milk sugar at breakfast—this may be mixed with a cereal, but not cooked with it.

The foregoing method you should follow by beginning with the first and adding one thing after the other until the desired result is accomplished. Do not become alarmed if your bowels do not move in the beginning, or if a day goes by during the time you are on the above additions.

When active irrigation is being carried on, the fats are largely increased for their constructive properties, and sometimes constructive tissues.

Values of lavage of the intestine. As is well known various forms of enemata with different solutions, have been employed in the cases. As a rule, however, all such procedures have not been helpful and often distinct harm is done. It seems warranted to state that if the bowel cannot be irrigated from above, such as by the duodenal tube, the intestinal tube of Einhorn,[8] or by operation in which an opening into the intestine is made and catheter irrigation through it, it had best not be irrigated at all. This rule follows so uniformly throughout the cases I have seen that it is a matter of importance, and I have tried the enemata method in some of my own cases and feel convinced of its non-value.

Einhorn[8] has just reported his second successful case in which the intestinal tube was used with solutions of calcium carbonate, 0.5 to 1000 c.c. of water, then 1.0 to 1500 c.c. and 15 drops of ichthyol in the latter part of the drip, and for 1 week, 2 oz. of 1 per cent. mercurochrome (220). Irrigations with the calcium carbonate solution were conducted twice a day during the active treatment. As to the use of the intestinal tube, I am not familiar with it and there is no doubt if involvement of mucosa high in the ileum is not present and the disadvantage of wearing the tube through the active treatment and its removal is not a feature, it offers much worth the while. My own experience is that many of these cases must be irrigated for months and thus its use does not appear practical from that standpoint. However, the duodenal tube method should supplant the operations for irrigations, especially since many of those treated by operations are improved only as long as irrigations are kept up, and when the fistula is closed, the reperformance of operation for the original purpose is not fair to the patient, especially when the results by duodenal or intestinal tube are every bit as efficient and can easily be resumed at any time.

The irrigations practised by me are by use of the Jutte tube which gains entrance into the duodenum in the average person in about fifteen minutes, and while any of the many forms of duodenal tubes can be used successfully, for clinical work the speed of gaining the duodenum is a factor of importance. The main solution used is a hypertonic one of 9 grams each of sodium sulphate and sodium chloride in 1000 c.c. of water delivered at 105° F. Where the *B. pyocyaneus* or *Streptococcus viridans* figures in the infection of the gastroenteric tract the treatment is preceded by a stomach lavage of simple solution. When the tip of the duodenal tube is in the duodenum (as judged by fluoroscopic observation rather than by aspiration), the irrigation is run into the duodenum and this flushes through in usually from 30 to 90 minutes when practically all of the solution is discharged from the rectum. There may be a second or third alvine discharge

quickly following after the first outpouring, and generally the effect of the solution is over in about 2 hours time. This is conducted each day until the rectal mucosa shows distinct improvement, and then less frequently. When the patient has fever, looks septic, or has much irritative rash from the intestine, the twenty-four hour interval is kept up until these also materially improve. Where an operative fistula exists no effort is made to irrigate through it.

Of much interest in this connection is the employment of various dyes to beneficially effect the bacteriology of the intestinal canal. Influenced by the experiments of Churchman[4] gentian violet has been added to the hypertonic solution in strength of from 0.3 to 0.75 grams per 1000 c.c. Gentian violet has a somewhat selective action on most all gram positive organisms, and since the control of the element of mixed infection is important for permanent benefit and the *B. aerogenes capsulatus*, streptococcus viridans and fecalis are all gram positive organisms, the use of this die is a valuable adjunct. With the use of gentian violet it has been impossible to prove whether or not a bactericidal effect is produced on the intestinal organisms. I am inclined to believe it does take place because culture experiments prove this rather conclusively and clinically the cases do better when the dye is employed. What is interesting with this die, as well as mercurochrome 220 and acriflavine, is that staining of the mucosa cannot be demonstrated by proctoscopic examinations. The dye comes through in the discharge from the bowel much altered in the intensity of its color. These dyes do their depths of staining when thrown into limited areas, such as joints, ureters, empyema sacs, etc., but when introduced into the limited rectal canal for instance no staining of the tissue is observed, in this way also corresponding to the lack of staining effects of the inorganic silver salts in the intestine. This may be due to the large amount of bacteria the dye comes in contact with in the intestinal contents in that way vitiating it too quickly for it to be intense enough to stain the mucosa in an apparent way. With the introduction of mercurochrome 220, which is believed to be non-toxic, it looked as though this would be a valuable asset to the irrigation solution or to be used separately. It is probable that the small amount of 2 oz. of a 1 per cent. solution, such as Einhorn employed, would be well tolerated, especially when introduced alone. My first case in which this was employed was one that had been irrigated with a simple hypertonic solution for 7 days and was symptomatically improving. On the eighth day 10 oz. of a 1 per cent. solution was introduced through the duodenal tube 2½ hours after the hypertonic solution and when it had thoroughly cleared the tract. The result was apparent in a few hours in the discharge of almost total blood, marked abdominal distress, fever and intense irritability of the colon that lasted 11 days. It is possible that my initial case had an idiosyncrasy to mercurochrome producing a marked reaction, that I employed too much of the dye, or should not have followed it after the hypertonic solution. Since that time I have employed it with success in six cases in weaker dilution, but to-day experiences from results have made me resume the gentian violet which seems safer to use in the larger quantities required to influence intestinal conditions. In the last years as an addition to the gentian violet in irrigations, I have employed gentian violet in enteric coated pills, each containing 0.016, these being taken after meals. It is probable that these have an additional value. Acriflavine in pill form also works to advantage on the *B. coli.*

There comes a time in these cases (usually after the sixth week) when active treatment in bed seems no longer required. The improvement is so marked, generally with gain in weight and strength, that the case logically becomes ambulatory. At this time weekly or biweekly irrigations may be kept up, and the diet as mentioned becomes important. With the patient under active treatment in the sanitarium or hospital the diet is not important, the usual soft diet of ample calories meeting all the indications. But now the high protein diet, with or without the constipation additions comes to the fore and it is incumbent on the patient to follow these rigidly. The gentian violet or acriflavine pills, salol, with or without bismuth may be employed, and as much physical rest as possible insisted upon. The use of active cultures of *B. acidophilus* kept up in large doses until the *B. coli* are definitely reduced, and then in smaller amounts seems in order for several more weeks of observation. The importance of body chilling, especially of the abdomen, should be guarded against, and until the irritability of the intestinal mucosa has subsided substantially there is no better item of treatment than that the patient should live in the open. Those who can afford it, in my experience, do better in southern California than elsewhere. Several have gone there and secured employment in the larger cities and have remained steadily free of intestinal symptoms.

Up to three years ago there was considerable work done in my cases with the use of antidysenteric serums and subcutaneous administration of *B. coli* (autogenous). A few were apparently benefited in small degree by the use of the serum, but in none could this definitely be judged as apart from what was being accomplished by the other treatment. The same was true in a general way with the *B. coli* vaccines, although in nine of the early cases it seemed as if some beneficial effects were being accomplished. This, however, was so trivial and irregularly met with that both the vaccine and the serum were discontinued and the results are apparently quite as good as with them.

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21 WEST SEVENTY-FOURTH STREET.

Germans Teaching Radiology in Spain.—Three Teutonic radiologists, Friedrich of Freiburg, Chaoul of Munich, and Wernekros of Berlin, are conducting a course of radiology in the University of Granada, which is free to the medical profession. The fact that instruction is given in the French language only is probably a matter of teaching efficiency, although it may be done also to anticipate the criticism of German propaganda. The Germans naturally brought their own apparatus along.—*La Presse Médicale.*

SYNERGISTIC ANALGESIA;

ITS ADMINISTRATION IN OPERATIVE GYNECOLOGY.

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WHENEVER study and research, or the successful application of new ideas, are applied or followed in clinical work and there appears an advancement over existing procedures, one can but awaken to the possibility and watch with keen thought all that has been accomplished and be prepared to participate and advance when the betterment is near at hand.

New facts emanate constantly from the laboratories of the fundamental sciences; some are of a practical purpose while others are achievements destined to be potential in the progress and advancements of the future. The great mass of recent progress has been the result of biological study and research. Future success will depend upon its intimate knowledge and its practical application to clinical work.

Anesthesia has made surgery possible and while its principles have been made use of in many ways and under different forms and applications, it has always been a source of worry and anxiety to the surgeon. Every surgeon prefers his own form of usage or application and since no two surgeons agree in its mode of application, it is a paramount truth that general satisfaction is wanting, while it is only the brilliancy of an advocate that will popularize an individual method. General anesthesia with its many modifications, various mixtures, and the great number of instruments for its direct or indirect application makes one wonder whether the study and advancements are at all satisfactory and that some form, either more simple or more safe, is not the possible solution of the problem.

The recent researches of Dr. James T. Gwathmey tend to show that synergistic analgesia is an advance over direct anesthesia, in that the dangers and complications, the disagreeable effects incident upon the giving, and the post anesthesia results are lessened, if not completely done away with.

The basic idea depends upon the analgesic effect of magnesium sulphate in combinations with morphine sulphate to which may be added ether, chloretone, paraldehyde, cannabis indica or other drugs of the same class.

Gwathmey tells us that, "with inhalation anesthesia alone, the lack of relaxation and the after-effects of nausea, vomiting, and gas pains, are induced by the morphine. By the addition of magnesium sulphate to the preliminary morphine medication, a better relaxation is obtained and the nausea, vomiting, and gas pains are much reduced, if not entirely eliminated. When no allowance is made by the anesthetist and when anesthesia is superimposed upon the state induced by preliminary medication, the patient is immediately plunged into the danger zone and possibly into a condition of shock from the inhalation anesthetic."

"The action of the magnesium sulphate is to hold the morphine sulphate in contact alone, or that assumption may be made that each of these agents affects in different ways the same part of the central nerve system, or has an affinity for special nerves or centers, and on the whole the combined result is safer and more powerful than that of one when used alone."

When one considers how often there is a dread fear of the patient for the taking of an anesthetic; the choking, coughing, and sense of strangulation with its irritable effect upon the mucous membrane of the respiratory tract; the stage of excitation with its varying degrees of laughing, shouting, crying, twisting, turning, and violent struggling; the hours of nausea and vomiting consequent upon the completion of the operative procedures and the withdrawal of the anesthetic, he may contrast this picture with one of absolute quiet and rest, a gradual loss of tactile sense followed by drowsiness and total ignorance of time of operative procedure; at times asleep and unconscious while still in bed; no knowledge of having been removed from ward or room to operation suite, passing through a major operation with no excitation or fear of entrance into a danger zone, with little or no change in blood pressure, pulse rate, or respiratory sequence; the return to bed in ward or room, the placing of a pillow beneath the head and the patient resting quietly with no excitation or depression until return to the normal has been accomplished.

In general, I have noted the willingness of patients to accede to my request for the use of analgesia. There have been no material conditions in its application when my directions have been carefully and intelligently followed. In none of these cases has there been excitation or depression, no idiosyncrasy to magnesium sulphate, no harmful effects upon the respiratory center, and no laxative or irritant effect upon the bowel. Morphine sulphate, chloretone, paraldehyde, deodorized tincture of opium, and cannabis indica have been used alone and in combination, given by mouth, per rectum, and by hypodermic. Consciousness was generally present, loss of tactile sensation usually began to show itself about one hour after the giving of the synergistic analgesic combinations. In most instances this loss of sensation began at the feet and extended upward, the patient reporting the limbs felt heavy, and while they could move them they did not feel the pressure of mattress or bed clothes. Analgesia would increase until the patient would not feel the prick of a pin or the pinching of the skin. The patient was transferred at once to the first stage of inhalation anesthesia.

After the giving of a sigmoid instillation the patient was placed upon a carriage: if in ward, was removed to an adjacent room which was previously darkened, if in a private room, the shades were drawn and door closed. Light was excluded from the eyes by covering the face with dark colored mask, and the ears stuffed with cotton. An occasional attention was given to the patient until removed to operation room. As much noise as possible was avoided at all times. Orders and necessary conversation were given in low tone of voice.

At times the patients were semicomatose or sleeping, they could be aroused by shouting or talking in a very loud tone of voice and close to the ear, they could be moved from ward carriage to operating table, placed in Sims, Trendelenburg, or exaggerated lithotomy position without the slightest resistance or evidence of muscular rigidity. The usual operative drapings were accomplished and

the operation field prepared without disturbance, until towel clips were made to catch the skin, when reflex was aroused, and the patient winced. There was no complaint of pain and with clips in position the patient would become quiet. In routine, all vaginal work, including curettage, was performed without the use of an inhalation anesthetic, in many instances while operating within the vagina no one was at the head of the table, a junior would be occupied in taking blood pressure, counting pulse rate and respiration. I would often remove the ear plugs and carry on a conversation with the patient while my house gynecologist would be performing a curettage. It was not possible to open the peritoneal cavity without the use of an inhalation anesthetic. After entering the peritoneal cavity the inhalation was either discontinued or given until the patient had passed into the stage of automatic respiration, then to be stopped and only used again upon the return of muscular rigidity.

Shock was uniformly absent and at no time was there necessity for the administration of cardiac or respiratory stimulation. Postoperative pain did not appear in the great number of cases, and in those cases in which it did appear, it was greatly lessened and its continuance was a matter of a few hours only.

Excessive vomiting was present in two cases, and in both instances it began before operation, continued during operation, and lasted for several hours following its completion. Singultus was frequent during the first hour following the sigmoid instillation.

Novocain in one and two per cent. solutions was used for skin and abdominal wall, but was not found as satisfactory as the inhalation anesthetic. Nitrous oxide and oxygen were not used in any of my cases. The general technique herewith reported has been followed in 100 cases, the procedures differ materially from those heretofore reported by Dr. Gwathmey.

The preliminary preparation in all cases has been the same. The night before operation, two soap sud cleansing colonic enemas into the sigmoid were given one hour apart, *i.e.* 8 P. M. and 9 P. M., the patient going to toilet after each enema The morning of operation the patient was given two clear hot water enemas one hour apart, *i.e.* 5 A. M. and 6 A. M., the patient going to toilet after each enema. It is important that the entire rectum and sigmoid be cleansed of all bowel excrement. The ordinary 18-inch rectal tube was used.

The analgesia continued about two hours, while the return to the normal would vary from three to five hours. When an inhalation anesthetic was necessary ether alone or in combination was administered: *i.e.* chloroform ℥i, ether ℥iii, or a mixture of chloroform 2 c.c., ether 96 c.c., ethyl chloride 22 c.c., oil of orange ½ c.c.

Series 1.—Two hours before operation, 20 c.c. to 30 c.c. of a chemically pure 25 per cent. solution of magnesium sulphate made with distilled water, filtered, and sterilized, was injected slowly beneath one breast or divided equally in both breasts, taking care that the needle did not enter a vein. It is most important that nothing but a pure, clean and specially purified grade of magnesium sulphate be used. It must be freed not only from all mechanical dirt but also from chemical impurities. The preparation made by Squibb and so prepared was used by me. One hour before operation an hypodermic of morphia gr. ¼. One half hour before operation sigmoid instillation; ether ℥ii, paraldehyde ℥ii, olive oil ℥i. In giving the sigmoid instillation the patient was placed upon the left side, the buttocks slightly elevated. The medication was carried slowly into the bowel, through the 18-inch rectal tube, the tube was clamped and left in situ to be removed when the patient was placed upon the operating table. Fifteen minutes before operation, hypodermic of morphine gr. ⅛ and atrophine gr. 1/150. Chlorotone and fluid extract cannabis indica in varying doses were given by mouth.

All curettements were performed without inhalations. Mucous vomitus was occasional, postoperative pain only in operative area. Gas pains were not present. The patient did not require the continuous attention of a nurse. No period of excitation was present. Morphine sulphate was not given at any time following the return to bed.

Series 2.—In this series the sigmoid instillation of series 1 was omitted to determine the combined effect of the magnesium sulphate and morphia with the suppository of chloretone and cannabis indica. The patient felt the pain of the pin prick and pinching of the skin and while it was not necessary to use the inhalation for curettements, it was used for the dilatation of the os uteri. There was scant analgesia present during the abdominal work.

Series 3.—Two hours before operation 30 c.c. 25 per cent. solution of magnesium sulphate, morphine gr. ⅛, half in each breast. An hour and a half before operation rectal suppository (chloretone gr. xv., extract cannabis indica gr. ii). An hour and a quarter before operation sigmoid instillation (ether ℥ii, paraldehyde ℥ii, olive oil ℥i). Half an hour before operation morphine gr. ⅛, atropine gr. 1/150, hypodermically. Quarter of an hour morphine gr. ⅛, hypodermically.

The beneficial effect of this procedure was noted by the deeper analgesia, less rigidity of abdominal muscles, and a shorter period of inhalation anesthetic.

In series 1, 2, and 3 the site of election for hypodermocylsis beneath the breast or breasts and into muscle substance was chosen as the most advantageous locality, because of convenience and least amount of disturbance to the patient. Four cases were followed by an inflammatory reaction, but investigation showed the solution was faulty and directions as to its giving had not been complied with.

Chloretone and cannabis indica in the form of rectal suppository (series 2 and 3) gave better results than when given by mouth; analgesia was deeper, the abdominal muscles were less rigid, and the time of the inhalation anesthetic was shorter. The addition of morphine gr. ⅛ to the magnesium sulphate solution (series 3) was advantageous. There was no untoward result from the sigmoid instillation.

Series 7.—Two and one-half hours before operation, morphine gr. ⅛, and atropine gr. 1/150, hypodermically. Two hours before operation, sigmoid instillation (25 per cent. magnesium sulphate, ℥vi-℥vii; ether ℥i-½-℥ii; glucose ℥i-½; olive oil ℥i; de-

odorized tincture of opium mxx-xxx; powdered acacia, q.s. to make an emulsion).

It will be noted that the analgesic procedures were simplified by lessening the number of individual medications and increasing the ingredients of the instillation. At first the entire dose of morphine was given with the instillation but the patients complained for several minutes of a burning and stinging effect produced in the sigmoid; consequently half an hour before the giving of the instillation a hypodermic of ⅛ morphine and 1/150 atropine was administered.

This procedure was not satisfactory because of complaint in all cases, of postoperative pain in the operative area, mild form of gas pain, light analgesia, pronounced restlessness, and rigidity of the abdominal walls.

Series 11.—Two and one-half hours before operation, morphine gr. ⅛-¼, atropine gr. 1/150, hypodermically. Two hours before operation, sigmoid instillation, ℥xii, (25 per cent. magnesium sulphate, ℥vii; ether ℥i-½; glucose ℥i; paraldehyde 3i-3ii; olive oil ℥i; morphine gr. ¼; powdered acacia q.s. to make an emulsion).

In this procedure morphine was substituted, in the instillation, for the deodorized tincture of opium to overcome the complaint mentioned in the previous series. Series 4, 5, 6, 8, 9, and 10 have been purposely omitted, it being beyond the scope of this paper because of the length of the complete report.

This limited experience has been of sufficient value to convince me that analgesia is a vast improvement over the present form of anesthesia. The results I have obtained mark the beginning of an investigation, which will require much study and trial to perfect. There is no doubt that concomitant conditions and correlative circumstances will influence the combinations of choice in meeting the many pathological states. In some instances one technique appeared to be successful, while again a series of cases would present themselves which would show better results by making some material change in the analgesic combinations. Temperament and individuality influenced the results more than age, sex, or nationality. Acute diseases responded more quickly and the analgesia was more profound than when given in cases of long standing. The more careful the technique, the more successful the results. The inhalation anesthetic when given with the Flagg or Bennett inhaler was most satisfactory in that a better control could be exercised in the minimum amount necessary to produce unconsciousness, and abolish or control muscular rigidity. It was noted in all cases that the inhalation must be discontniued immediately upon the occurrence of muscular relaxation and loss of reflex sensation, as the patient would be plunged deeply into the danger zone, and the inhalation is not to be administered again until rigidity had reappeared.

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Iron in Cancerous Anemia.—A. Robin and Bournigard state that the anemia of cancer patients is due to demineralization of iron in the blood and of the reserve iron of the tissues. The disintegrated iron may be found in the urine in double the normal amount. The anemia is due to inability to form new red cells to replace those which are destroyed.—*Bull. Méd.*

THE USE AND ABUSE OF LOCAL SUPPORT, ALSO MOTOR REDUCTION IN HUMAN READJUSTMENT OR ORTHOKINETICS.

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(*Concluded from page* 182.)

Resources of Support for Relaxed or Impaired Muscles.—The resources available for support of relaxed or impaired muscles have not yet come to be accorded the attention the topic deserves by internists, though perhaps they have by surgeons. Much can be learned from surgical literature where the findings are many, and but little from that of the internists; useful observations are often to be found, but scattered and incidental. The subject warrants systematic correlation. The utmost I can do is to offer such hints as may serve to impress the value of temporary reinforcements for disordered muscles, not only for themselves but as they influence functional relationships to the hollow and tubular viscera, notably the circulation, in particular of the splanchnic areas, and also of areas so remote as oftentimes to suggest little bearing on the real causal agency.*

We may visualize the subject of support for relaxed or impaired muscles as of two major domains, during acute inflammatory and painful states, also for an injury and during the whole period of acute disability as, *e.g.* from poliomyelitis, following hemiplegia, also during as well as after rheumatism, gout, acute arthritis, following the infections, such as pneumonia, gonorrhea, tuberculosis, also in locomotor ataxia, neuritis, and a host of other states wherein local and painful disorders occur with more or less frequency.

A good working rule is to be prompt in placing a joint or limb at absolute rest during the period when it is acutely disordered or painfully affected, in order to secure the maximum position of advantage for functional repair. Directly at this point the caution should be emphasized that in even the most acute states due to infections, traumata, paresis, and—as the surgeons are now urging—in fractures and after amputation, the best ultimate results follow encouraging volitional exertion at the earliest suitable moment. Precisely what that moment shall be is specified by surgeons who speak from experience. When immobilization is continued beyond the period when it is actually needed, or when voluntary movements must be made, not only does the tone of the structures begin to fail, but the parts grow weaker (asthenic, adynamic). This disrepair oftentimes becomes permanent. Suffice it to say here that many contributions are rapidly accumulating in which warnings are sounded against "the curse of immobilization."

*One of the most suggestive and helpful of books was long ago contributed by Dr. Albert Abrams, entitled: "Splanchnic Neurasthenia or the Blues." In this the author presents a wealth of suggestions and recommendations in the recognition and relief of a large group of distressing maladies, somatogenic and psychogenic. Later researches by this author throw valuable light on making use of reflexes, the cardiac, abdominal, cerebral, and other, in his work, "Spondylotherapy." To this the reader is referred for specific information.

Now support is one thing and immobilization is another. The support may be complete for periods of time; these periods, however, must not be too protracted, otherwise function is reduced to an extent wholly indefensible. The question is being put by surgeons and often seriously opposed, as to whether protracted and complete immobilization is ever to be encouraged.

In respect to the use of support in complications, coming within the internist's domain, it is my personal judgment that—enormous as is the value of fixation of, say, a joint affected by rheumatism—more harm than good is likely to follow protracted immobilization unless the utmost judgment is used.

The functional competence of living beings depends (biokinetically) upon a right condition of tone in the muscles, tendons, fibrous structures which afford support to the organs. The term support as applicable to clinical problems is the sum of the effects of devices—natural or artificial—capable of helping a part to perform its normal functions safely and comfortably. Any artificial support should be used only for so long as absolutely necessary and should be frequently removed with a view of encouraging volitional control. A support for hernia may need to be used indefinitely, but the real objective is to use it only till a radical cure is affected. This cure may occasionally come about through natural repair, but much more certainly and economically through surgical repair.

The purpose of support is to amplify the power or puissance of structures deficient in tone and to enable these structures to regain tone through normal use—movement—through graded and particularized volitional training.

The topic deserves discussion from all aspects, indications for the support, the nature and character of the support needed, where and how it can be best applied, the objectives to be obtained, likewise comments from experience and observation with particular emphasis on the aid which support furnishes in the achievement of rehabilitation of power and hence of functional competence.

Warnings Necessary to Observe in Employing Immobilization.—The utmost vigilance must be practised in regulating the kind, amount, degree, and length of time immobilization shall be used. So important is this that many surgeons omit fixation in conditions wherein it has been used from time immemorial, among which are fractures. Surgical literature is full of such observations, recommendations, and warnings.

Perhaps it is sufficient to generalize thus: Fixation is only and solely of value to supply that degree, quality and continuity of local rest as shall prove sufficient to meet the actual requirements and no more. Just as soon as the primary or essential requirements are fulfilled, fixation should be limited or removed. Function performed makes, and when omitted unmakes, structure. The exercise of motor function is no exception. Indeed, it is well to err on the side of liberality in permitting and encouraging movement in such parts as it is permissible. Apparatus to afford support is for the sole purpose of encouraging the disabled parts to perform permissible motor function. Every encouragement must be given to voluntariness.

Devices for Reinforcing, supporting, or fixing painful, injured, inflamed, under-developed, overstressed, over-relaxed, seriously weakened, paretic, or deformed parts.—The legitimate purpose for using any supporting or locally resting device or measure is in order to fortify the impaired structures only until they are again enabled to do their own work in accord with design.

An essential adjuvant to the use of support is a confident encouragement devised to reawaken determination and whatever latent motor energies exist. This training in volition, or conspicuous purpose to perform can and should be begun while the suffering part is held at rest. Personal effort and expert guidance should begin just so soon as pain or inflammation subsides sufficiently. Passive acts done by the operator, guiding touches, pushes, directings, pullings, torsions, and the like, are desirable throughout treatment and with graded increments of force. Function makes, and equally remakes, structure provided there be enough good material present to begin on.

The first step in utilizing support is to rid the structures of any mechanical, spastic, or psychogenic restrictions to movement or of tonic spasm. This is most important. Muscles which are primarily weak or weakened by damage or partial paralysis (paresis) need assistance in development or by throwing the stronger ones out of commission and then encouraging the weaker ones. This can oftentimes be done by fixing the stronger ones. Often the stronger ones are in tonic spasm and these must be released.

Volition is the chief reliance, a teaching of the stronger muscles to relax when in tonic protective spasm. This can be effected by skillful touches, pressures, or spastic or over-tense groups, or by light concussions—alternating with omissions for two or three minutes. Use alternate tapping for one minute—omitting one or two minutes, tapping again, total about three or four times, usually suffices. If insufficient use gentle pressures. Follow at once by voluntary movements. Isolation of stronger muscles is said to be accomplished by injections of 80 per cent. alcohol into the nerve supply of the stronger group, thereby inducing a temporary paresis.

Also motor equipoise can materially be helped by slow voluntary energizing through performing movements of each alternate group, chiefly of the adynamic group. Alternations of slow movements with rest are best. After these devices have been used, and as near an equipoise acquired as conditions permit, then the impaired group may need support to afford rest and aid nutrition. Expectant attention (psychic hypertension) may be felt in those muscles directly associated with the paretic group, inducing weariness and transferred spasticity; or there may be pain in those affected, or even tremor. A limb affected by tremor is sometimes temporarily relieved by fixation, especially in a hyperextended or hyperflexed attitude—the one which experience demonstrates to be best.

The first element of support is a suitable or compensatory attitude. This deserves attention. Here is a department of the fine arts and one in which it pays to become an adept. The acme of good home remediation and of good nursing is the placing of an ailing body in positions of ease, of advantage. Wher-

ever there is undue drag on a weakened or suffering part, that part should be adjusted so as to be comfortable. There may be no sensory disturbance to direct attention, but that is all the greater reason for discovering the need and supplying the deficit with promptitude and resourcefulness. Here we may merely mention some of the objects which, used with skill and tact, bring down blessings on the doer and raise the index of appreciation for vision and expertness:—Pillows, little ones well placed, pads of soft material under parts which experience stress, wedges of firm material under these pillows to give shape or extra carrying power, or under the mattress, as needed. Especially is a pad under the ankle of avail so that the heel may be raised and not compressed by resting its weight on the calcaneum, but to hang over. This small relief may cure an insomnia, a backache, headache, or other transferred stress. So of attitude readjustment in elbows, knees, hips, etc. The very best support to surface tissues is thin rubber tissues, devised by the late Morris Longstreth. A special rubber tissue is used and when fresh serves a number of purposes through its steadying action on the skin, subdermal structures, blood vessels, and sweat glands.

The niceties of using rubber tissue were taught me by the enthusiastic "discoverer." Bandages and splints, familiar as they are, can supply exceedingly artistic opportunities. As a young assistant to that master in medicine, Weir Mitchell, I gained a large credit for cure of a peculiarly favorite patient who came under my care during his absence of some weeks, and who developed acute rheumatism involving hands, arms, and legs at once. The pain and tenderness were appalling and unrelievable till late one night I broke up a pasteboard box, got rolls of cotton and lightly bandaged and splinted the arms and legs. Whereupon the medicines worked—or Morpheus, the God of Sleep, arrived.

Severe pain must be relieved. Well adapted support will do more in acute arthritism than "mandragora or all the drowsy poppies of the East." Splints are familiar tools, but how often does the internist use them except for a fracture or sprain? They render equal service in a number of exigencies, but *must not be tightly placed.*

Sand bags, especially long ones with a fixed trough or so-called "Physick's long splint," laterally from axilla to *and beyond* the ankle are of paramount service in painful and inflammatory conditions; a turn of a bandage may also be used to steady.

As a supporting appliance the resources of adhesive plaster reach the heights of a wonder worker. Among the particular adaptabilities of Z. O. plaster are: to a hanging belly, to splanchnic circulatory disorders, in pleurisy, pleurodynia, pneumonia, in acutely painful states of almost any situation or degree, injuries, bruises, spasmodic states, fibromyositis of the abdominal parieties, contusions, blisters—laid directly on and widely embracing the bleb, slits being made to let out the serum—also to be placed over strong iodine or other escharotic or medicament to be absorbed, also over muscles after severe manipulation. One of the most valued uses of Z. O. plaster is to place *strips over a constricting, contractured scar,* in order to be able to seize and lift the surface, to manipulate and free the adhesions, to remove the compressing action on blood vessels and nerves. Indeed, there is no end to the uses of Z. O. plaster as a supporting, also compressing, instrument. Straps for pleurisy should be broad, put on during full expiration and to nearly encircle the whole torso.*

Plaster of paris bandages deserve mention; also those of other similar substances. Then there are a number of useful forms of supporting devices, such as trusses, testicle supports, and the like. We now come to a large and important domain:

Abdominal Supports, Belts, Girdles, Cuirasses, Corsets.—Some of these do far more harm than good; this is invariably the case if used too tightly or for too long. The best supporting belt to serve as a type is that of Morris Longstreth, described at length elsewhere. This is the ideal belt, hence a brief description will suffice to exhibit the major desiderata to which any other device should conform. This consists of a *non-elastic* girdle, five inches wide, of cotton horse-girthing encircling the hips, from the anterior superior spine of the ilium to the external trochanter, reinforced in front with three whalebones, one vertical and two at the angle of Poupart's ligament, to keep it from "buckling up," fixed by four strong one-inch tapes and buckles behind, worn over the undershirt, kept down to place by nicety in adjustment and *not* by perineal bands. Successful adjustment depends on keeping the lower tape (of the four) just firmly placed and each of the other three a little *less* tight, till the upper one is *least* tight. Otherwise the belt will "ride up" and get about the small of the back and serve no good purpose, only exert harmful compression. It takes from two to three weeks to get the hang of this belt; then its admirable qualities will demonstrate themselves. Of course any belt or supporting girdle should be put on while the patient is lying on the back.

All attempts at "fitting" abdominal supporters by cuts or tucks are of dubious value. The sides of a good belt, or abdominal girdle, should be *parallel.* Only when made thus do we get that nicety of support by which the lines of force are distributed as needed to raise the viscera, to grip the big supporting structures of the hips, and to do the lift required.

As to corsets, the female of the species demands that they shall be worn, whether needed or not. They seldom serve any good purpose except to gratify a whim of the wearer. Ordinary corsets so constrict the abdomen as to produce a *downward* compression. The now fashionable "straight front" corset can be made to compress the lower abdomen to any desired degree. Too often *when once worn they are always worn* and the vigor of the structures compressed are permanently impaired. "The last state" of that wearer thus becoming "worse than the first."

*Doubtless every clinician cherishes the conviction that he knows all about the uses of Z. O. plaster—so did I till I had as a patient for some years till his death, an old friend who was a veritable Lazarus for real, inexplicable heartrending, kaleidoscopic disorders and diseases. As an artist of the first class in the Z. O. he had no peer, causing it to work miracles of efficiency direct and indirect. This included inanimate as well as animate structures. Had manufacturers of this plaster learned a tenth part as much from him as myself they would have paid him handsomely to demonstrate.

Then there are special shoes to afford support to so-called "broken" or weak, longitudinal arches. These give comfort at first, but inevitably bring almost the same destruction of function in the arch springs and plantar muscles as the corset does in the abdominal muscles.

The radical cure of flat foot is muscle training to regain the prehensile power of the foot.* Here again a device of Morris Longstreth called an "elevation" is the best device, described in the paper cited above.

Suspension or Head Traction.—The head often needs support when the neck muscles are at fault, or when some weakness exists in the arthroses of the cervical spine. Various forms are employed, but they could be much improved. I devised one for a lady whose neck was paretic after a trauma, of light aluminum tapes crossing over at the head of the seventh cervical, by movable rivet, one strip to curve by each side of the head, above the ear, then on a movable pivot or pin, to join an encircling band around the forehead and occiput, and held under the arms by tapes. This can be covered and made into a tasteful bonnet for a woman and acts admirably.

The jury mast is a familiar and helpful device. Some are attached to the cuirass, others to a chair. Of great efficacy is the sling, to support a limb from an overhead position, to relieve the stress of dependency or to raise a part in order to encourage the draining away of stagnated fluids. Suspension of a part is often of great comfort and when least expected. Graduated suspension used for tabes possesses greater value than has been accredited and deserves further demonstrations.

Traction also is of great efficacy and comfort in neuritis, tonic protective spasm, joint involvement, to relax structures forced into cramped positions. Any person who is long confined to bed, and especially to a fixed position, even though it be partial and temporary, is grateful for suggestions as to changes in attitudes, and especially for temporary fixation to support constrained parts.†

Supporting devices are coming into increasing popularity for a number of conditions not heretofore recognized as needing them. This is especially true of conditions of the lungs, heart, great vessels, and many displacements of the abdominal organs for which they had not been considered.

The heart and liver are often found to be displaced downward and need support. So of the lungs, which are not often ptotic but demand fixation for a number of reasons over and above the immobilization of the pleura. Diaphragmatic and pleuritic involvements, sometimes mediastinal, are relieved by abdominal fixation. So of emphysema, many asthmatic conditions are greatly relieved by fixation about the diaphragm which aids the expiratory efforts. This is an excellent means of repairing many, or clinically curing some, such disabilities, acute but especially the chronic. As to thoracic faults, use of support for the heart and lungs is often, as it is in enteroptotic disorders, one to supplement developmental measures. *Support* is a great aid to this, *while muscle training* is being performed.

*See article by the author on "The Significance of Foot Troubles and Deformities," *New York Medical Journal*, November 1, 1919.

†See article by author, "Arm Pains, Coordinated Occupation Neurosis, etc., *Interna. Clinics*, March, 1921.

The circumference of the thorax should in every one be at least two or three inches greater than that of the abdomen, in order to be safe or functionally competent throughout. Blood ptosis is a serious matter. It is seen at its simplest in fainting. Anyone who faints is then deficient in vascular tone, which may be temporary or protracted. Splanchnic vascular relaxation has been referred to. It is a highly significant condition, of far-reaching force.

Among the most familiar forms of ptosis are those of the abdominal organs, including the liver and stomach, colon, also the kidneys, and the genitourinary organs, all the way down to the uterus, adnexa, and the rectal structures. In enteroptosis there is also the peril of kinks, torsions, irregularities, obstructions. Mechanical devices for replacing or sustaining displaced viscera are notoriously problematical. The difficulties are many; the first is to replace dependent organs which are usually resistent, as by adhesions. It is recommended to cultivate omental fat to act as a cushion. One observer has called attention to "our little supporting balloons," sections of intestines distended by gas. At best all these are unreliable. The most promising method of visceral replacement is by reversal of attitude, head hanging or hip raising. These unnatural attitudes can be maintained only for short periods. Even then when coils of intestines are pushed up, in or near to where they belong, the problem of retaining them is serious and discouraging. Certain experts in muscle training go so far as to teach a series of movements which include standing on the head. I have seen their demonstrations and was at first amazed at the endurance which could be achieved in this reversed verticality after the pupil had practised it for some weeks. Undoubtedly good results are thus obtained. The measure deserves open-minded attention. Individuals who have good hearts and are free from degenerative changes in their arteries, seem to suffer no discomfort from standing on their heads repeatedly, and for many minutes at a time. Flushing of face soon ceases to be noticeable. Prejudices against this exploit are hard to overcome, yet it well deserves trial, especially in coloptosis. I have for years made extensive attempts at manipulation of the intestines through various procedures, including subdermal tractions; a bit of Z. O. plaster put on the surface helps mightily, and in many instances where there is no active inflammation present, attended with distinct success.*

Relaxed pendulous bellies need support, but only until their defective walls can be restored by musculotendinous development. Suitable supporting girdles furnish aid while the natural supports are being rehabilitated. *Colon irrigation while in the knee-chest attitude* supplies an upward hydraulic push of much efficacy.

Supplying this element of support tends to relieve promptly many asthenias, adynamias, blood ptoses, many backaches, headaches, latent acquired deformities, intraarticular tensions, in the vertebral, sacroiliac and other junctures or synchrondoses; so also to economize repair of energy in sleeplessness, nervousness, distresses, pains.

The *truss* deserves passing mention, especially

*See paper by author: "Visceral Stasis, Mechanical Obstructions and Their Effects Relievable by Rational Measures," *New York Medical Journal*, July 31, 1915.

those for diastasis of the abdominal recti. Also the head traction device, known as "the jury mast," is invaluable for fixation of the head. This is an efficient instrument for neck traction in case of disorders of the cervical and upper thoracic vertebræ; also in many forms of disability wherein the structures of the spinal column, or associated parts, are overstressed or contractured. This often occurs among the after-effects of poliomyelitis and of diphtheria; also in conditions of retarded growth, the secondary effects of fibromyositis, in relaxation of joints, and in a host of disorders.

Periarthric structures may also need support, apparatus, or reinforcement, to prevent excessive movements, and to aid in performing movements involving mobility, flexibility, pliancy. Full movability of joints and tendons is essential to integrity of motor and static function. Full flexibility of muscles is necessary to maintain motor competence, prompt response to volition, transference of motor stimuli, to secure full reaction times, and to permit and encourage the ebb and flow of fluids and nerve impulses.

Normal mobility of the backbone is essential not only to the function of the vertebral supports, but also to maintain the integrity of the spinal subcenters, normal innervation through the lateral branches of the spinal nerves, rami communicantes, and to encourage circulatory rhythms.

Rigidities and loss of elasticity or muscle tone are common in young as well as old, especially after injuries (fractures, sprains) or in certain diseases, *e.g.* fibromyositis, arthritism, and scar tissue formation. They may also result from periods of enforced sedentary life, long convalescence, chronic irritation, and overstress due to local tonic spasm or vagotony. Rigidities are especially hurtful to function in structures of the chest. The limitations of movement impair respiration and impede cardiovascular action and lymph propulsion. For example, in muscles of the neck protracted rigidities cause interference with passage of body fluids to and from the head, discouraging function (negative hydrostatics), hence, also, structures of the organs of special sense and of the face, teeth, and especially of the brain.

Passing mention may be made to the more important of devices to act as substitutes for Nature, such as artificial limbs (prosthesis), strictly surgical or orthopedic (orthokinetic) measures, and many devices which meet on the common ground of the internist and surgeon. Among these are various familiar supplemental devices, mechanisms, and agencies, *e.g.* artificial limbs now wonderfully perfected, also glasses to correct refraction errors and muscular anomalies of the eyes, protective colored glasses to modify light, etc.; artificial teeth, bridges, crowns, agencies to aid hearing, to supplement the body in numberless directions and particulars. We do well to recall the wonderful work of the surgeons at LaPanne in fitting papier maché supports to recent amputations whereby the sensitiveness of the nerves and muscles was preserved.

Great subjective benefit from arresting the venous circulation in the limbs in cases of heart disease is claimed by Engel (*Med. Klinik*, Berlin, October, 1912). By damming off so much of the venous blood the severest circulatory disturbances are mechanically combated; the arterial blood proceeds on its way unhindered, while the heart is relieved from much of the bulk of the venous blood. The passive distention of the right auricle grows less and the venous blood left in the trunk can be propelled much more easily into the lungs. The capillaries in the lungs thus receive less blood and are enabled to contract better while the lung capacity is increased, with consequent deeper inspiration of air, greater intake of oxygen and its better distribution to the coronary vessels, and hence to the heart muscle, with its consequent rejuvenation. The effect is also felt elsewhere, especially in the medulla oblongata and viscera. Once the vicious circle of the venous stasis is broken up in this way, the whole clinical picture may become transformed.

This method of temporary tying off venous blood from the limbs does not harm even when frequently applied—in direct contrast to digitalis—while the ease and simplicity of the technique commend it as a valuable acquisition to the physical means of treating disturbances in the circulation.

Retraining of Muscles which have been injured or where bones, tendons, or ligaments have been compromised.—This deeply significant topic is within the surgical domain but by no means outside that of the medical, for often an injured patient remains also under the care of a family adviser. He needs to become qualified to carry out certain details of treatment, hence should become familiar with the details and scope of the subject. The object is to maintain functionation, and to prevent contractures and adhesions in the movable structures, in particular of the tendon sheaths. The nutrition of the muscles also deserves consideration; likewise that of the motor centers. Joint structures, indeed, come in for first consideration; also periarthroidal, intraarthroidal, and associated parts. The needs for volitional control, encouragement, or restraint, vary with the nature of the lesion. Here counsel from the surgeon is constantly desirable.

The movements to be recommended are at first the primitives, gradually approaching the more complex. Some movements should be designed to equalize action where contractures are suspected or feared, or where overtension or tonic spasm coexists, in order to release spasm and to encourage action in weakened structures. Also the problem of recovering range, excursus, or ambit comes in later. First the impaired part must be held or adjusted in the best attitude for functioning to advantage.

It is convenient to indicate where, and by which muscles, movement shall be made, the direction, force, and the like. This is readily done by touching the part in which motion is to be made, directing it what to do, and how much effort can and should be made. Where spasm exists this can be released by a gentle tapping on the tense of rigid area or part and then by guiding the part which should move at a touch of the hand.

When the condition is one of irritation or inflammation the utmost nicety is called for. In suppurating joints the question becomes a delicate problem. The surgeon can best determine whether fluid needs to be removed. Where the condition is one of mere weakness, from whatsoever cause, the demand for skill, sympathy, and encouragement is large.

In paretic states, as Colin MacKenzie so strongly emphasizes, one must *never abandon hope*. The de-

sideratum is for the exercise of great care in finding a suitable position of advantage, a release from any or all positions of disadvantage.

When the slightest volitional movement can be evoked then the question is what proportion of the disability is psychogenic, due to discouragement, disappointments, hopes deferred, also there comes in the element of fatigue, exhausted energies, or peculiar exhaustibility of centers.

In order to awaken dormant energies in paresis stimulation can profitably be used by electricity, and also in order to demonstrate that the parts are vital enough to expect yet further action. Almost as good as electricity is the prick of a pin or needle to stimulate the skin. Deep pressure with a pencil point is especially useful over the sensitive spots or "nerve points," such as are pointed out in charts (*e.g.* one by Capt. Charles L. Ireland), used by electrotherapeutists to determine where responses can be elicited. Manipulations over these points can effect much in the way of release from inhibitions. Remember that the skin has areas or points in which pain only is felt, or only heat, or only cold, or only anesthesia persists. Since we have not yet fuller researches as to sensory fluctuations in these sensitive or insensitive points, the subject needs further study.

The most artistic muscle reeducation problem is in cases of paresis, especially of neglected pareses. Here the watchword is unbounded hopefulness, patience, persistence, and ingenuity. The index of recoverability lies in the degree of frank, cordial, consistent cooperation throughout the course, and afterward faithfulness in performance.

In addition to the fibrous, aponeurotic, and other adhesions or shortening of tendons, joint immobilities, there also exists often a deep-seated tenderness, soreness, or supersensitiveness to pressure or to movement, active or passive. This *sensory distress in paretics* has not been mentioned so far as my reading goes. It is a decidedly significant feature, one which probably contributes much to the total disability. To be sure, the distress is rather a discomfort than pain, has ceased to be noticeable, just enough to deter activities, but is *the great discourager of movement.* It is this subconscious distress which inhibits energetic action, rather than a loss of energy. Treatment includes diagnosis of local disabilities at every step, appraisement of real restrictions, of limitations, of differentiations between apathy, fear of being hurt, and habitual inertia.

Diagnosis and treatment is a continuous process from start to finish.

1504 PINE STREET.

Pellagra in Paris.—A case of pellagra was shown before the *Société médicale des hôpitaux* recently. The disease picture comprised the deep erythema of the hands and feet, yellowish plaques on the neck suggesting a collar, intense and shining redness of the buccal mucosa, dysphagia, nervous excitation and bilateral paralysis of the sixth pair. A milk regimen cleared up these symptoms, although there remained some atrophy of the lower extremities and anesthesia of the legs. Certain violent pains yielded to gelsemium. The etiology of this case was paradoxical. The patient had not left Lyons for the past seven years and was prosperous. He had a "truck patch" of his own and ate meat. But he was fond of polenta and ate it several times weekly. No one else in the family developed the disease and apparently no one else had eaten polenta.—*La Presse Médicale.*

RECENT FRACTURES OF THE NOSE;

HOW TO DIAGNOSE AND TREAT THEM.

BY WILLIAM WESLEY CARTER, A.M., M.D., F.A.C.S.,

NEW YORK.

IT is unnecessary for me to urge the importance of this subject, for fractured noses are common in the experience of all. None of the socalled minor injuries that first come under the observation of the family doctor are entitled to more thoughtful consideration than that of a broken nose. Emphasis upon the primary importance of this injury is insisted upon, not on account of the immediate results, though these may sometimes be alarming, but because we now know from experience that when a nose is fractured, the various segments of the nasal arch may be separated or the broken fragments may rest at such an angle that not only will the nose be deformed but the respiratory function will be so disturbed that a chronic congestion of the nasopharyngeal mucous membrane soon develops with its train of symptoms referable to the nose, throat, and ear locally and the more general symptoms referable to nasal obstruction, such as mental hebetude and inability to concentrate the mind on a definite subject, headaches, and a general sluggishness of many of the bodily functions. If the victim of nasal obstruction has athletic aspirations, his accomplishments in this field are greatly curtailed by it. There is no reason why a fractured nose should not be treated with as much intelligent consideration as a fractured arm or leg, for it is just as important for the fractured parts to be placed in apposition and proper alignment before union occurs. No one will question the importance of the function of the nose, nor will anyone minimize the disadvantages to its possessor of a badly deformed nose.

When the nose is injured during childhood the developmental function of the septum is sometimes destroyed. I have reached the conclusion from my study of the dynamics of nasal development, that this function is chiefly to elevate the flattened bridge of the infant's nose, and that it is the chief factor concerned in giving prominence to the adult organ. Therefore if the septum is destroyed or its vitality impaired either by traumatism or disease, or if it is so thrown out of alignment by an injury that it is no longer capable of exerting pressure in a vertical direction, the nose will retain more or less of its infantile type, a saddle nose results, and for some reason, which does not appear altogether clear to me, there is a marked tendency to the development of atrophic rhinitis. Probably it is due to the interference with drainage from the ethmoid cells. The chief sequelæ of broken noses in adults are deformities varying in character and extent and nasal obstruction.

The diagnosis of a broken nose is not always easy, especially if several hours have elapsed since the injury, for on account of the obliteration of important landmarks by the swelling, the clotting of the extravasated blood, and the liability to confuse blood crepitus with bone crepitus, the situation is often obscure as to the exact extent of the injury.

In making the diagnosis, in all cases our chief reliance must be placed upon palpation. In infancy and early childhood the *x*-ray has no diagnostic value, as the tissues at this age offer so little resist-

ance to the rays. Even in adults, unless the fracture is very extensive or there is a displacement en masse of a large portion of the nose, the *x*-ray is of doubtful value, for fracture lines may be so easily confounded with suture lines and, unless stereoscopic views are secured, with the deeper structures of the nose. In radiographing injuries of the nose, the tube should be very soft and of low milliamperage. I have found that the positions giving the most accurate radiographic information are the exact profile and the frontonasal; in the latter the forehead rests on the plate and the tip of the nose is about one centimeter from the plate. Even in the best of plates, however, the shadow lines are so faint that their interpretation is attended by considerable uncertainty.

Fractures of the nose may involve the following structures: (1) the two nasal bones, (2) the septum, (3) nasal spine of the frontal, (4) nasal processes of the superior maxilla. With these the lacrymal bone may be involved in the fracture, but the injury to the lacrymal sac and duct is more frequently due to the traumatism and the overriding of the fractured segments of the nasal processes of the superior maxilla. The floor of the orbit, including, of course, the maxillary sinus, may be involved.

Fracture of the cribriform plate of the ethmoid may occur; this constitutes a complication which may involve serious consequences; its possibility should always be considered in severe fractures.

The fracture may be compound externally; it is probably always so intranasally. The sharp edges and points of the broken fragments may be seen or felt protruding through the mucous membrane into the nasal chambers.

Treatment.—Formerly the generally accepted treatment by both specialist and general practitioner was to introduce intranasal splints and stretch a piece of adhesive plaster across the bridge of the nose. In the light of our present knowledge such treatment does not deserve serious consideration and had best be dismissed with the statement that the patient would probably have been better off without treatment of any kind. Only recently I heard the statement from a man, whose judgment upon other matters is ordinarily good, that after adjusting the fragments with the Adams forceps, he puts on a piece of adhesive plaster to immobilize the parts and that he secures good results. The results of such treatment may be good enough temporarily to satisfy the doctor, the patient, and his friends, but this is before the swelling has subsided and long before the cicatricial contraction has occurred, which, after all, is the chief determining factor in deformity and obstruction cases following injuries to the nose.

The accepted time for the treatment of a fracture of the nose, from a scientific and practical surgical point of view, is either immediately after the injury or within the few days immediately following the complete subsidence of the swelling and any primary infection which may have occurred at the time of the injury. After this time the exudate has become more or less organized and we must contend with cicatricial tissue, and as a rule with an established deformity and obstruction as well. The treatment of these cases requires a different technique and special consideration and does not come within the scope of this paper.

Assuming that we have a fracture of the usual type, one involving the nasal bones, the nasal processes of the superior maxilla, and the septum: If the patient is an adult an *x*-ray examination may be of some value, but after all our chief reliance must be placed on palpation and inspection. Bone crepitus is usually elicited, but this may be confounded with blood crepitus. The nasal chambers should be packed with gauze or cotton soaked in a solution composed of adrenalin 1-1000 and cocaine 10 per cent., equal parts, before attempting to make a thorough examination. If bone fragments are found protruding through the mucous membrane, they should be pushed back into the tissues if possible; no bone or cartilage should be destroyed, every fragment is needed, for each constituted a part of the nasal arch, and if it is destroyed a certain amount of deformity is certain to result.

In my opinion, chemical antiseptics, such as alcohol, carbolic acid, etc., should not be used in the nose; they injure the mucous membrane and interfere with the normal nasal secretions, which are antiseptic in their action. Freshly sterilized physiological salt solution, freely used, will insure an aseptic field if anything will, and besides it will tend to preserve the vitality of the bone fragments and aid the recuperative powers of the tissues. I may state here that even an external compound fracture of the nose does not carry with it the same serious significance that a similar injury in some other part of the body does. There are several factors which favor the nose, the most important are: the abundant blood supply and the free anastomosis of the blood vessels; and the established local immunity to the flora that inhabit the nasal cavities. (Serious infected wounds of the nose are due to the introduction of alien infections.) Personally I attach much importance to the antiseptic value of the normal nasal secretion and to its mechanical action in flushing out the nasal cavities in all injuries of the nose, whether they be operative or accidental.

I know of no injury to the body where proper surgical aid, administered immediately after its infliction, yields more gratifying results, and the importance of prompt attention is greatly magnified by the future benefits to the patient, for the early adjustment of the several segments of the nasal arch not only restores the latter to its normal state, but it limits the formation of scar-tissue, the contraction of which is such an important factor in the development of deformity and obstruction to nasal respiration later on.

In these cases of recent fracture, the bridge-splint, an instrument which I devised several years ago, finds its most useful application. The action of this instrument is intended to duplicate the forces which Nature employs in the development of the flattened nose of the infant into the more prominent organ of the adult. Perhaps the numerous inquiries which I have received concerning this instrument offer a sufficient excuse for my again describing the technique of its application. The instrument consists of a bridge formed by two fenestrated wings which are hinged together in the middle. The distance to which these wings can be separated is regulated by a thumb-screw. The

second part of the instrument consists of two intranasal splints which are made at the time from plastic guttapercha, such as is used by dentists. Each of these splints is attached to a long silk suture which is threaded into a curved needle. The needle is passed from within the nasal cavity up through the dorsum of the nose, just below the ends of the nasal bones, and the splints are pulled into their position against the roof of the nasal cavities. The wings of the bridge are then thickly padded with gauze. This is absolutely necessary, otherwise necrosis of the skin will take place where these rest. The bridge is then placed in position over the nose. The sutures passing through the dorsum of the nose are now threaded through the fenestræ in the bridge which correspond to their points of exit from the nose. By means of the thumb-screw the wings of the bridge are adjusted so as to exert the proper pressure at the base of the nasal triangle. A sufficient traction is made on the sutures to pull the nasal bridge up into its normal position, and these are then tied together over the hinge of the bridge. If the lines of force exerted by this instrument are studied, it will be seen that the resultant of their conjoined action tends to construct a nasal arch of normal proportions by pulling the fractured and dislocated segments back into their former position. I usually leave the bridge on for about two weeks. It is self retaining, but if the patient is up and about, the weight of the bridge should be supported by means of a piece of adhesive plaster attached to the forehead.

The following precautions are absolutely essential: The nasal cavities must be cleansed daily with some mild alkaline solution or with physiological salt solution. Each day the sutures must be untied, the bridge removed, and the skin over the nose, and especially at the base where the bridge has rested, bathed with 95 per cent. alcohol. The bridge is then readjusted as before. In the use of this instrument great care must be exercised not to exert too much pressure. In proper cases, that is, where none of the component parts of the nasal arch have been destroyed, I have found this to be the ideal method for treating recent fractures of the nose.

In very severe injuries of the nose where fracture of the cribriform plate or base of the skull is suspected, treatment of any kind, especially forcible cleansing of the nose, is distinctly contraindicated. The rule should be "hands off" and complete rest until any possible avenues for the admission of infection to the brain box have been securely sealed. Meddlesome interference in cases of this kind is very apt to be attended by serious results. In these extensive injuries I believe that safety demands on the part of the rhinologist a delay of at least ten days before attempting to restore the shape and function of the nose.

If practically all of the bones of the face are involved in numerous comminuted fractures, the wall of the frontal sinuses and antra may be crushed in, as has happened in two of the cases coming under my observation. The displacement of the fragments is so great that satisfactory results can be secured only by an open operation. The fragments which cannot be made to remain in close contact by manipulation are drilled and sutured together with kangaroo tendon. If the external wound is insufficient to work through, an incision should be made from the inner canthus along the base of the nose and the tissues elevated over the fractured bones. In this area healing takes place so rapidly and readily that excellent results may be secured, even though the mutilation is extreme, if patience and perseverance are exercised by the operator; and if necessary incisions are made through the normal facial lines, disfiguring scars may be avoided.

In conclusion I may say that if, in recent fractures and dislocations of the nose, the same care is taken to place the parts in proper position and immobilize them as soon as possible after the injury, as is commonly done when similar injuries occur in other parts of the body, not only will many traumatic deformities and obstructed noses be avoided, but in young people the nose will continue to grow and develop normally.

2 West Sixty-seventh Street.

THE ENDOCRINE ASPECT OF FEMALE STERILITY.

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Not all cases of sterility are due to endocrine disturbance. There are numerous other causative factors which must be taken into consideration. Taking for granted that the male elements are present in sufficient number, actively motile, and normal in morphology, it is quite necessary to be certain that they pass on into the cervical canal maintaining their motility, and on into the uterine cavity. Certain considerations, such as depth of the vaginal pool and the acidity of the vaginal secretion, unless of inflammatory origin, are of minor, if of any, importance in this determination. So, too, is the position of the uterus, either in anteflexion or retroversion.

Excluding all instances in which inflammatory conditions are present, either of the cervix or of the tubes, or in which there is a sealing of the outer ends of the tubes as the result of plastic inflammation, or in which large ovarian cysts or uterine tumors are present, there still remains a large class of cases with apparently normal genitalia, or but slight deviation therefrom, who do not become pregnant.

In order to appreciate more fully and clearly the reason for this condition, and at the same time to afford a clue as to treatment, it will be advantageous to review the steps which lead up to pregnancy, and the subsequent fate of the ovum after fecundation takes place.

As a preparation for prospective pregnancy the ovary every 28 days discharges a mature ovum from a mature Graffian follicle. The follicle ruptures in the process and expels the ovum, together with the liquor folliculi, into the abdominal cavity. This process of rupture of the Graffian follicle cannot be considered as a mere hydrostatic process in which the accumulated fluid thins out the wall of the follicle, causing an atrophy due to occlusion of the blood supply, and when the ten-

sion becomes great enough, ruptures the wall at its weakest point, which, fortunately, happens to be at its free surface. If this were so, the follicle should enlarge along the path of least resistance toward the hilum of the ovary, and not rupture through the thick tunica albuginea. That the rupture does take place is due to the enzymotic action of the liquor, which digests the wall of the follicle and the tunica, and allows of the rupture and the escape of the ovum. The ovum, when cast out, is surrounded by the cells of the discus proligerus, known as the trophoblast.

After the ovum escapes into the abdominal cavity it is drawn up into the outer end of the tube by the current created by the ciliary motion of the epithelium lining the tube. It is usually here that impregnation takes place. When this happens menstruation is inhibited.

The follicle, after rupture, fills up with blood, which clots, and into which soon grow the lutein cells, forming the corpus luteum. If pregnancy occurs the corpus luteum persists and develops; if no pregnancy occurs it soon atrophies and forms a small scar in the ovary. While the corpus luteum is present no further ovulation takes place.

At these times certain changes become manifest in the uterus. The endometrial lining becomes thickened and the vessels engorged, and if no impregnation occurs, menstruation takes place, the endometrium shrinks to its normal proportions, and the ovum is lost. If pregnancy occurs, the endometrium, instead of returning to normal, increases in thickness, forming the decidua. Assuming that the impregnated ovum surrounded by its trophoblast cells is carried on out of the tube into the uterine cavity, and that it settles on the uterine wall, it does not stay very long in this situation, but at once, by virtue of the digestive action of the trophoblast layer, begins to eat out a small hole in the decidua, and embeds itself in the wall. These trophoblasts in their pentration puncture the minute capillaries and allow the blood to escape and bathe the growing ovum, thus furnishing it with nutrition for its continued growth until the formation of the placenta.

Now, what may occur in this physiological chain which will be responsible for the resultant sterility of the individual? In the first place, the follicle may not reach maturity, or else may not rupture and discharge its ovum, as a result of the failure of the enzymotic action of the liquor. In this case it may either regress or remain as a small follicle cyst. Secondly, if ovulation occurs normally, the passage of the ovum may be interfered with, either by a faulty ciliary action or by a maldevelopment or under-development of the Fallopian tube. Thirdly, if the impregnated ovum passes out of the Fallopian tube and reaches the uterine wall, it may fail to embed itself in the decidual lining, due to improper development of the uterus and endometrium, and be cast off. Or else it may endeavor to embed or actually do so, and by too active bleeding, caused by the capillary penetration of the trophoblast cells, it is washed out and lost. Or in other instances in which there is too great an engorgement of the endometrium and a resultant excessive menstrual flow, the impregnated ovum cannot firmly embed, and is swept away. Fourthly, in certain instances in which one pregnancy has taken place the corpus luteum, instead of undergoing atrophy, persists as a corpus luteum cyst, preventing subsequent ovulation and pregnancy.

The above enumeration at once gives us an idea as to what factors are at fault and how they may be remedied. It has been definitely established that the ovaries control the growth, development, and function of the internal organs of generation. Their removal or cessation of function is soon followed by the atrophy of these organs. The function of the ovaries is carried on by the follicular portion, including the corpora lutea, and by the interstitial portion. The functions of these portions are not similar. The follicular portion furnishes mature ova and, together with the corpora lutea, exerts a trophic effect on the endometrium, and more especially the corpus luteum, stimulates the development of the decidua, and at the same time exerts a protective influence against the too deep invasion of the trophoblast cells of the growing ovum. The corpus luteum, furthermore, aids in the inhibition of menstruation. The ovary as a whole exerts a trophic and developmental influence on the tubes, uterus, and vagina. Now, while it is true that the ovary is necessary and responsible for the perfect function and development of the genitalia, it is just as true that the other glands of internal secretion are responsible for the growth and development of the ovary. Notably in this connection are the pituitary, thyroid, and adrenals. The pituitary, in addition to its trophic action on the ovaries, particularly the follicular portion, has a stimulating action on the uterus, being responsible for its rhythmic contractions. The removal of the pituitary leads to atrophy of the ovaries. Disease of the pituitary is followed by ovarian dysfunction. Alterations in the secretion of the thyroid profoundly affect the ovary and its functions. Disease of the adrenals, especially the cortex, exerts a stimulating or inhibiting action on the ovary and its functions, dependent upon whether the adrenal hormone is in excess or deficient.

We may now proceed to interpret the previous pitfalls to pregnancy in the light of their basic disturbances. Thus the failure of the follicle to rupture can be ascribed to the failure of the pituitary to give trophic support to the ovary, especially the follicular portion. The faulty ciliary action or maldevelopment of the tubes, usually associated with a like condition of the uterus, is the result of a hypofunction of the ovary. The failure to embed is due to a hypofunction of the ovary, particularly the corpus luteum, which does not sufficiently exert its nutritive action on the endometrium and aid in the continued attachment of the ovum. In the excessive penetration of the trophoblast the corpus luteum is again at fault by its failure to exert its protective action against the too deep penetration of these cells. And, finally, the failure to embed, due to the excessive congestion of the endometrium causing an excessive menstrual flow, can be attributed either to an over-activity of the ovary, especially the interstitial portion,

causing a menorrhagia, or to a deficiency in the action of the corpus luteum in its inhibition of menstruation. It is, therefore, apparent that the chief factor in the production of sterility is a dysfunction of the ovary. A careful examination of the individual will usually reveal the gland or glands responsible for or participating in the ovarian deficiency, which, as previously indicated, are usually the pituitary, thyroid, and adrenals. The dysfunction of one or the other or several of these glands produces conditions which make it impossible to carry through the entire sequence of pregnancy from ovulation to embedding and growth of the ovum. That these conditions may be improved by the use of the proper gland extracts is certain. The following brief case reports are illustrative of some of the points brought out in the previous statements:

CASE I.—R. S., age 29, married six years. Family history, negative. Past history, negative. Patient has been married for two years without becoming pregnant. Menstruatnon began at sixteen, has always been irregular, varying in interval from two to five weeks, of three days' duration, slight in amount, accompanied by slight cramps. Husband's spermatozoa normal. The patient is fairly well developed, slight tendency to stoutness, medium height, otherwise negative. Pelvic examination: Pelvic floor intact, vagina negative, cervix normal, uterus anteflexed, freely movable, normal in size, adnexa negative. This case is apparently one of insufficient ovarian function, as evidenced by the lateness in onset of menses, their irregularity, and scantiness. With this in view, ovarian extract, five grains, three times a day was given for two months. Pregnancy then took place and continued without interruption to full term. Breech delivery. Dead baby extracted.

Twelve months later patient was again delivered of twins. Subsequent to cessation of nursing the menses again became irregular, diminishing in quantity. The patient was having flushes, was extremely nervous and complained of cardiac palpitation. It is evident that the impetus to the function of the ovary by the administration of the extract and subsequent pregnancies is waning and that menopause symptoms are being manifested.

CASE II.—R. C., age 28, married eight years. Family history, negative. Past history, negative. She has been married three years without becoming pregnant. Menstrual history, began at fourteen, has always been regular, two to three days in duration, scant flow, no pain, no clots. Husband's spermatozoa normal. The patient is somewhat stout, small in stature, otherwise negative.

Pelvic examination: Pelvic floor negative, vagina negative, uterus acutely anteflexed, slightly smaller than normal, movable; adnexa negative. Six months later dilatation and curettage and insertion of a glass stem was performed. Eight months after dilatation no pregnancy had as yet taken place. From the history and examination the case was evidently one of deficient development of the ovary plus a diminished activity of the pituitary. She was placed on five grains of ovarian extract three times a day, and in addition was given one-half mil, of pituitrin hypodermically three times a week. The subsequent menstrual periods showed a noticeable increase in the amount of blood lost. Three months after beginning treatment pregnancy occurred, which terminated uneventfully in delivery at term of a normal girl.

The foregoing cases are not cited as evidence that all cases of sterility can be made to become pregnant by the use of suitable organic extracts. But they should serve to call attention to a large class of cases which heretofore were either dilated or curetted or subjected to mutilating operations on the cervix, or else were merely put off in the hope that nature would ultimately effect the desired result. Every case of sterility where gross pathological conditions can be excluded warrants a careful study of the individual with a view to determining any malfunction of the endocrine system and the use of the indicated extracts for prolonged periods. In this way many a sterile female may become fecund, a result gratifying alike to patient and physician and a distinct asset to humanity.

1141 FOX STREET.

THE ANTECEDENT FUNCTION OF THE TONSIL.

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EMBRYOLOGY has established that each individual goes through a great many stages which his species has undergone during the course of its evolution. Ontogeny, the development of the individual, recapitulates phylogeny, the history of the evolution of the species. This doctrine, however, is not to be received without qualification; for, while evolutionary selection was steadily adopting improvements in organs and limbs, and adapting their several functions, a retrogressive tendency to eliminate useless and burdensome structures was simultaneously operating. Consequently there is here and there a hiatus in the register of descent. As embryonic development denotes rapid recapitulation, it signifies abbreviation and incompleteness of such recapitulation. Organs phylogenetically oldest, that, by virtue of their acquired resistance to vicissitudes became established in such individuals as proved themselves the hardiest during an incalculable period of time, have been found to persist in a rudimentary state even when no requirement for their endurance had arisen within an interminable period. Every animal organism requires that the gases contained in the tissues be continuously changed. The organs which perform this service in the lower forms of life are situated in the integument. As the scale to higher organisms is ascended, gills, specialized organs of respiration, appear. Gills in various stages of development are found in numerous aquatic forms of life. Simultaneously with other evolutionary changes incidental to the attainment of terrestrial habitation, the swimming-bladders, formed from an expansion of the primitive intestinal wall, and previously only employed by aquatic creatures to raise or lower themselves in the water, gradually assumed respiratory functions, developing more and more into a lung; while, as terrestrial life became unremitted by submersions, the gills lapsed recessively. However, over inestimably long periods of time, the turbulent waters would periodically engulf the neoteric terrestrial inhabitants, and such as had come to depend exclusively upon their primitive lungs for aeration would incontinently perish. By this method of natural selection the creatures that had inherited even fragmentary gills could survive, and the "habit" of retaining gills, regardless of imminent urgency,

in time became fixed. The circumstance that under the stress of inconstant tidal conditions, enduring for aeons, and during the very period in which the lowest forms of life were entering upon their long ascent that ended with man, made the under-water breathing organs inherent. Over so extended a series of geological epochs did these conditions prevail that the vestigial gills, when no longer required, eventually assumed a state of latency, not implying a loss of capacity to recrudesce pro re nata, but rather a condition of confirmed inactivity. The lungs of amphibians are very simple, and only when animals become enduring terrestrial inhabitants do they rely exclusively upon the lungs for oxidation of the circulating fluids.

Darwin says (The Origin of Species): "All physiologists admit that the swim-bladder is homologous, or ideally similar in position and structure with the lungs of the higher vertebrate animals; hence there is no reason to doubt that the swim-bladder has actually been converted into lungs or an organ used exclusively for respiration."

During the third week of the development of the human embryo four grooves are formed on each side of the neck. These denote the gill-slits of fishes. The arches at the front and sides of the neck in the human embryo signify the gill—including arches in fishes, and, just as in the fishes, the main blood vessel from the heart, the aorta, sends a ramification to each arch. As embryonic development progresses, the ear is formed in a portion of the first cleft. The lower jaw is formed in the first arch. Within the second and third arches the hyoid bone is developed. Within the fourth and fifth arches the thyroid and cricoid, as well as the tracheal and bronchial cartilages are formed. Identical skeletal parts are seen in the embryonic human throat and in the gill area of fishes. In certain fishes an operculum grows back from the second arch, covering the gills, thus forming a gill-niche. A similar proceeding takes place in the human embryo. A fold grows backward from the second arch, covering the third and fourth clefts, obliterating them. Not infrequently this effacement is imperfectly accomplished, and a small opening remains just above the inner end of the clavicle. This opening is the outlet of a fistula that is sometimes complete, communicating with the pharynx. Such a canal represents an unclosed gill chamber. When the branchial arches in the human embryo, representing the gill-breathing period of his pristine ancestry, disappear during the course of further development, the aortic branches within them are converted to other uses. Thus, those in the third pair of arches become in part the internal carotid arteries. While the branchiæ have disappeared in the higher vertebrates, their embryos show the slits on the side of the neck, proving, according to the axiom of ontogeny recapitulating phylogeny, that at an early stage of their evolution such animals were gill-breathers. It is probable that the tonsils are rudiments of pristine gills. At that early period the ear had not been evolved, and the waters swirled through the mouth and out of the then patulous branchial clefts, including those in which the ear afterward developed. The tonsils contain a number of crypts, into whose depths the investing mucous membrane ingresses, covering the parietes in every portion, thus presenting a considerably larger surface for the interchange of gases incident to subaqueous respiration. Corroboration of the plausibility of this theory may be deduced from contemplation of the anatomical relations surrounding and supplying the tonsils.

The palato-glossus muscles and the palato-pharyngei muscles with their mucous membrance investment, respectively, form the anterior and posterior pillars, between which the tonsils are located. It is no rash flight of fancy to idealize that the pillars at one period could be voluntarily contracted and relaxed, thereby alternately compressing and releasing the tonsils, incidentally expressing and sucking in the water. Further confirmation is found in the blood supply to the tonsils, presenting ample opportunity for aeration of blood coming from several directions. The dorsalis linguæ springs from the lingual artery, the ascending palatine and tonsillar from the facial, the ascending pharyngeal from the external carotid, and the descending palatine branch from the internal maxillary artery.

If the above outlined theory should prove tenable it would bring to an end the protracted speculation regarding the tonsils' possible special function. The tonsils serve no meritorious purpose, and whoever harbors hostile germs or bacilli in his tonsillar crypts may fitly exclaim with Hamlet:

"For though I am not splenitive and rash,
Yet have I something in me dangerous."

HIGHLAND BUILDING.

Medicolegal Notes.

Evidence—Custom of Hospitals—Competency of Nurses as Experts.—In an action against a hospital for damages for the death of a patient, accidentally burned from an inhalator for vaporizing eucalyptus oil while under treatment for pneumonia, it was held error to admit evidence of the kind of inhalators used at two other institutions, for the purpose of showing negligence of the defendant. Testimony as to the general custom and practice of well appointed and managed hospitals in the matter of the use of inhalators would have been competent on the question of care and diligence exercised in the premises by the hospital. But such evidence must go to establish the general custom and practice in the business under investigation. The evidence in this case did not satisfy that rule. It was also held error to exclude evidence that the plaintiff tried to procure the defendant's resident physician to testify favorably as to the death being caused by the burns and not from pneumonia, since evidence of a party's falsehood or fraud in the preparation and presentation of his case is receivable against him.

The exclusion of evidence of graduate nurses with long and varied experience as expert witnesses as to whether in their opinion the patient would have died of disease at about the time she did die if not burned was held erroneous. One who is shown to be a graduate nurse, and to have been constantly engaged in the calling of a professional nurse for years, may, it is held, properly be called upon as an expert to give evidence of this character. Evidence of two undergraduate nurses was also held competent, the weight to be given to their testimony being for the jury.

For these errors in admission and rejection of evidence, judgment for the plaintiff was reversed.—Longuy v. La Société Francaise de Bienfaisance Mutuelle, (Cal.) 198 Pac. 1011.

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THE DIFFERENTIAL DIAGNOSIS OF AFFECTIONS GIVING RISE TO CHRONIC JAUNDICE.

THERE are few problems more difficult to solve in practice than that of the nature and origin of chronic icterus. With the exception of cases in which the feces remain colored by the bile, it may be said that there is chronic jaundice from retention, but at the onset any diagnosis must be reserved, and it is only later in the course of the process that an hypothesis can be formulated. When the patient is seen at the onset, infectious or toxic icterus from some known or supposed cause will be suspected. When the initial phase has been passed certain morbid processes can be eliminated, still the field of hypotheses is yet vast in spite of a careful analysis of the case. Catarrhal icterus may tend to chronicity from the fact that a gastrointestinal catarrh—itself become chronic—may coexist and then the jaundice will persist, but it differs from the icterus of malignant disease by the variations in the intensity, remissions followed by renewed attacks, with parallel changes in the color of the stools. The liver and spleen may be very large, but a mere catarrhal jaundice lasting for more than five months has never been observed.

Calculous occlusion of the choledochus is often difficult to diagnose, and although in the majority of cases the migration of the calculus gives rise to a paroxysm of pain, in many cases this is absent, especially in elderly people. The intensity of the icterus, pruritus, and decrease in urea elimination are the same as in cancer. The liver is enlarged and in cases of biliary infection the spleen is likewise; digestion is disturbed and emaciation ensues. A good differential sign is a distended gall-bladder, which will occur in prolonged occlusion of the choledochus, likewise that of the intrahepatic and extrahepatic bile ducts; but in cancer of the hepatic duct the gall-bladder is not often distended. Another frequent, but not constant, sign is the variability of the icterus in calculous occlusion; it increases and diminishes, and staining of the feces does likewise. In malignant disease the jaundice does not vary. The liver in calculous occlusion has been known to atrophy; this is the biliary sclerosis described by Charcot and Gombault, which they produced experimentally by ligature of the choledochus. It may be added that Hayem maintained that in cancer there is hypopepsia, in hepatic lithiasis, hyperchlorhydria.

The cardinal symptoms of cancer of the head of the pancreas are a progressive continued icterus, emaciation and rapid cachexia, ascites, edema of the lower limbs, and gastric dilatation. In 80 per cent. of the cases the epigastric tumor cannot be perceived by palpation unless the case is seen at an advanced stage. Retention icterus accompanies dilatation of the gall-bladder; the liver is at first enlarged from retention of bile and then decreases from the progress of the biliary cirrhosis. Pancreatic steatorrhea may also be due to the absence of bile in the intestine; glycosuria is uncommon except, perhaps, at the onset of the pancreatic cancer. Cancer of the liver in its massive form can be readily diagnosed. There is no icterus here, but in nodular cancer, which, with massive cancer and adenoma, constitutes the third variety of primary hepatic malignant disease, chronic icterus is present in 66 per cent. of ahe cases, and when once it occurs it never decreases. Ascites, pain, anorexia, cachexia, and digestive changes make the diagnosis evident. In Hanot's disease there is chronic icterus but the feces remain colored. The spleen may be enlarged. This morbid process undergoes evolution in successive attacks, and death will occur at about four years from the onset. Cancer of the choledochus causes distention of the gall-bladder in seventeen out of eighteen cases (Devic and Gallavardin), and hypertrophy of the liver, while a neoplasm of the gall-bladder of the hepatic form does not give rise to icterus. The biliary form often causes icterus at an early date and this progresses in a continued way. Being a retention icterus, the stools are decolorized or this may result from occlusion of the choledochus by the tumor. When a malignant growth is seated at the junction of the choledochus, hepatic and cystic ducts, dilatation of the gall-bladder occurs in 50 per cent. of the cases. Cancer of Vater's ampulla gives rise to jaundice and clay-colored stools. The icterus may occur with complete remissions, but this is inconstant. It is therefore difficult to make a certain diagnosis, as there is no pathognomonic sign in any of these processes, and the varying diagnoses made by different observers abundantly prove this. The diagnosis will often be made only at autopsy, because even surgical interference is not always sufficient to enable us to come to a correct conclusion as to the condition of affairs.

THE DIAGNOSIS OF SEROSANGUINEOUS CYSTS OF THE SPLEEN.

IT can at present be assumed that the origin of sanguineous and serosanguineous cysts of the spleen is to be found in a peculiar condition of this viscus—anginomatous or varicose—which predisposes the organ to hemorrhage. The hemorrhage arises

either spontaneously or from a trauma. From the viewpoint of pathology a distinction should be made between encysted hematomata and serosanguineous cysts. The latter are true cystic productions having a wall covered with epithelium and the color of the liquid contents is of only secondary importance.

The symptomatology of serosanguineous cysts of the spleen is not marked, and usually these pathological products make themselves known by phenomena occurring in the viscera in proximity to the spleen, and at their onset at least they are very difficult to detect. When, however, a fluctuating tumor develops in the left hypochondrium, and especially if there is a history of previous traumatism in this region, a serosanguineous cyst of the spleen may very properly be suspected. The most delicate part of the diagnosis is to decide whether the morbid product is in the spleen or in an adjacent organ. At the onset of these cysts their existence is unsuspected, and as long as they are small they do not deform the spleen. But even later on, when the cyst has attained respectable proportions, pushing up the ribs and displacing the abdominal viscera, the diagnosis remains vague because, although it is easy to decide that a cyst occupies the left hypochondrium, it is less so to affirm that it is seated in the spleen. When the history of the case is not perfectly clear and the local signs are indistinct, mistakes are prone to occur, because it is more logical to think of common diseases rather than of infrequent pathological processes. Thus, an hydatid cyst of the left lobe of the liver may be mistaken for a cyst of the spleen, because percussion cannot always assign exact limits to the splenic dullness. This is also true of cysts of the tail of the pancreas and of the gastrosplenic omentum. Tumors of the mesentery can sometimes be made to move transversely, but in the case of the spleen the cyst, when it can be moved at all, can be displaced only in an upward direction. Cysts of the left kidney are of all the tumors in this region the ones which may most easily be confounded with splenic cysts, especially when these project into the lumbar region.

When the splenic cyst is very large and extends down to the pelvis it may be mistaken for a growth arising from some pelvic organ. But such an error can be avoided if the history of the case is carefully taken and it is ascertained whether the tumor developed from above downward or from the pelvis upward. If the splenic cyst has a thoracic development and if it gives rise to dyspnea, one is likely to jump at the diagnosis of diaphragmatic pleurisy, but hesitation will not be long if a careful exploration of the abdomen be made, as a cyst will extend much farther down than the most abundant pleural collection could ever do.

In any case of enlarged spleen malaria may be suspected, but a blood examination will settle all doubts as to the malarial nature of the splenic hypertrophy. In the case of a cyst, however, the diagnosis of the variety cannot be made clinically. The hydatid thrill is too infrequently obtained to be counted upon, and at present it is no longer regarded as pathognomonic, so that the diagnosis of this pathological process can never be completely eliminated in the cases under consideration. On the other hand, exploratory puncture offers too great risk and it will be of use only if the fluid withdrawn be submitted to careful laboratory examination. A blood cyst may lose its color, while on the other hand a serious cyst may become frankly hemorrhagic. The symptoms of anemia and internal hemorrhage should never be overlooked, as they may greatly help in the diagnosis for obvious reasons. A tumor rapidly developing in the left hypochondrium with signs of internal hemorrhage should always lead one to suspect a blood cyst or serosanguineous cyst of the spleen. In all cases the diagnosis of these pathological processes will be one of probability, and some known factor for causing changes in the spleen and a traumatism over the splenic area are the two fundamental facts that will indicate the probable diagnosis.

CARBON AND CHILDREN.

ONE of the most effective criticisms levelled against the psychoanalytic movement is its essentially simplistic nature. The new schools of spinal manipulation, say some, reduce everything to a subluxation of a vertebra, the psychoanalysts to an incest complex. On the face of it there is enough verity in this indictment to hurt, perhaps. But, to give the devil his due, let us examine the psychoanalytic doctrines a little more carefully. Tracing the individual's life far enough back we come to the new-born infant who, the psychoanalyst may assume, is autoerotic. As he develops in the family circle his personal contacts are limited largely to his parents. Now his reaction to either one of these may be love or hate. So we start out with four possibilities, two for each parent. That is, the child has four possible starting-points for his psychic development. He is later subjected to any number of influences, brothers and sisters, other relatives, servants, nurse-maids, playmates, and so on. Starting with any one of the four original possibilities, we have an endless number of variations. Any one familiar with the theory of permutations and combinations can easily see the vast variety of psychic reactions possible.

The psychoanalyst might seek an analogy in the field of organic chemistry. There we have carbon, with its quadrivalence, just as one child may be said to be quadrivalent. With the addition of hydrogen and oxygen in various quantities we have the practically limitless series of hydrocarbons. The quantity of these, as any student of organic chemistry knows, is sufficient to dazzle the mind, and how many million more of them are still undiscovered no one knows.

When carried back to its starting point, then, the psychoanalytic school comes to a rather simple statement: mother-love, mother-hate, father-love, father-hate. When we combine with any one of these possibilities the effects of parent surrogates of many sorts we soon have an endless field of

psychic possibilities. It is the psychoanalyst's task to take the psychoneurotic and endeavor to read the riddle of his distorted affective processes. He must try to trace the course of psychic development and discover the point of arrest or divergence from the normal. And this is no easy task.

MYTHOMANIA.

THE recently deceased French psychiatrist, Ernest Dupré, who died at the comparatively early age of 59, began his medical life as an internist, writing a monograph on biliary infections; thence he passed to neurology and ultimately to psychiatry (*Journ. de med. et de chir. prat.*, November 25, 1921, cviii., 22). For the past twenty years he had been identified with the latter, including its forensic aspect. The subject which greatly interested him and for which he is largely responsible in French psychiatry was the conception of the mythomaniac—of the habitual liar who relates tales of persecution and accuses others of crimes. He once held a series of conferences on forensic psychiatry in the Palais de Justice, going especially into criminal anthropology and sociology. Crime he presented from the viewpoint of etiology, symptoms, prophylaxis, and treatment. Certain psychoses naturally tend more to crime than others and present delicate forensic problems. Gross crimes are not in question here, but the more subtle ones in which self mutilation, instinctive perversions, hysteria, false accusation and pathological lying are concerned.

Mythomania as conceived by Dupré is a pathological tendency, more or less voluntary and conscious, toward lying and relating fabulous experiences. This tendency is practically normal in childhood as a natural consequence of the unfolding of the psyche, and gradually being attenuated becomes extinct about puberty. Hence, of course, the common refusal to allow children to testify. The statement that "fools and children tell the truth" is true only to a very limited extent. Beyond the child period mythomania is invariably seen in the disequilibrated and corresponds to a mental stigma of degeneration. This activity may be innocent but readily lends itself to crimes when the unbalanced and unstable individual has vicious tendencies. Ordinary mythomania in which the subject has more or less durable and systematized inventions passes into a higher degree known as delirium or imagination. Dupré also upheld the existence of a special emotional constitution.

LARGE DOSES OF ARSENIC IN TUBERCULOSIS.

SINCE the power of organic arsenic over an entire series of infectious diseases, chiefly of protozoan origin, has been shown, along with similar powers on the part of antimonials, attempts have been made to test these doses in various affections in which there is no actual indication. Sodium cacodylate in high dosage has been used in posthemiplegic lesions, Parkinson's disease, and other chronic nervous affections. The use of the same salt in chronic pulmonary affections in reality antedates that of salvarsan in syphilis, for Levrat in 1903 and Patry in 1912 essayed its use in tuberculosis, although in relatively small doses. Therasse in 1919 and Clouet in 1921 also reported on this subject. Further, in the last mentioned year Nidergang used this salt in colossal doses in the hope of influencing the bacillus favorably for the host. The drug was given by the intravenous route twice weekly—as much at a dose as 6 c.c. of a 50 per cent. solution without the least action on the microorganism, and consequently Nidergang condemned the idea. Clouet, writing in the *Gazette des Hôpitaux* for December 6-8, 1921, xciv, 96, does not agree with this condemnation. Irrespective of any action on the bacillus and without the necessity for such large doses, he claims good general reaction and gain in weight and strength. In other words, the drug acts by stimulating nutrition. The dose can be increased until the patient is taking one cubic centimeter of the solution daily, but the average dose over a long period is half the quantity. This is large by the book but not in comparison with the dosage of some authors. The remarkable roborant effect of large doses of strychnine in tuberculosis suggests that a combination of the two drugs in doses gradually increased should be even better than either alone.

COEXISTENCE OF CANCER AND TUBERCULOSIS IN THE SAME ORGAN.

BY one of those snap generalizations which are not peculiar to medical practice it was decided long ago that tuberculosis and cancer, being radically different from each other, could not possibly coexist in the same organism or at least in the same organ. It was admitted that epithelioma could and often did develop in the margin of a lupus, but this could be explained away by saying that cancer had a predilection to develop in any ulcer and that lupus was a very attenuated and slowly evolving form of tubercle. In some few cases cancer has developed in the tuberculous lung, breast, uterus, liver, etc., but this very rarity has been assumed to indicate some mystery of pathology. The grafting of a tuberculous process on cancer is even less frequent if possible and practically consists of tuberculous adenopathy regional to a primary cancer. Actual grafting of tubercle on cancer has been reported only two or three times. The great infrequency of these coincidences shows that the old generalization was not based on error of observation, but the fact remains that the two processes can coexist even in the same lesion. Duvergey and Jeanneney in the *Journal de Médecine de Bordeaux* for December 25, 1921, xcii, 19, append a bibliography of 16 recent references to the coexistence and mention two Bordeaux cases published before their own, which makes three from one locality within a short time. Villar found tuberculous axillary glands with a cancerous breast. Dubreuilh saw epithelioma on the back of the hand with tuberculous adenopathy and now the present authors relate the case of a superficial lesion of the scrotum, proved later to be cancerous, with a mixed cancerous and tuberculous inguinal adenopathy affecting a single lymph-node. It is assumed in such a case that originally there had been a tuberculous gland which was secondarily affected with metastatic cancer.

News of the Week.

Influenza and Pneumonia.—A bulletin issued by the New York State Health Department on Feb. 2 states that although New York City is experiencing an outbreak of pneumonia and influenza there appears to be as yet no unusual prevalence of these diseases up-State, according to the reports reaching the State Department of Health. The reports from New York City show a considerable recent increase both in cases reported as influenza and in cases and deaths from pneumonia. The State Health Department does not favor the use of vaccines for the prevention of pneumonia, in spite of the recommendation of the same by the New York City Health Commissioner. At the time of the last epidemic a thorough investigation of the efficacy of these vaccines was made, both by experiments upon animals, and by careful observation and analysis of the results of this method as used among 19,000 inmates of State institutions. This investigation, the report states, indicated that little or no protection against pneumonia was afforded by the use of the vaccines.

Veterans Ask Adequate Provision for Insane Comrades.—Disabled American Veterans of the World War recently presented a memorial to President Harding asserting that more than 3,500 mentally disabled former service men now in State institutions are victims of neglect, and urging the Government to take immediate action looking to the treatment of all such cases in Federal institutions.

Anglo-American Physiologists' Expedition.—Members of the Anglo-American physiologists' expedition to Peru to study the effect of Andean altitudes on the heart and other organs, returned on the Pacific liner *Ebro* on Feb. 1. They met at Lima, Peru, on Dec. 17 and went up the Cerro de Pasco mountains 14,200 feet above sea level. Later they made tests in the Carlo Francisco mountains, 17,000 feet high. The members of the party were under observation constantly and noted carefully the condition of the whites and natives living and working in the high places. Dr. Joseph Bancroft of Cambridge University, head of the expedition, said the results of the investigations would be compiled and used for commercial purposes. Many concerns have been put to much expense by the recall of men who cannot live at great heights after having traveled thousands of miles to their posts. Besides the benefit to business, Dr. Bancroft said, the tests and observations were of considerable value to medicine.

Rockefeller Institute to Establish Laboratory in Tropics.—Three representatives of the Rockefeller Institute, Dr. Carlos Chagas, Brazilian Commissioner of Health, and Dr. Fred F. Russell and Dr. Richard M. Pearce, sailed Feb. 3 for Brazil by the Munson liner *Aeolus* to establish at Sao Paulo a laboratory for the study of tropical diseases.

A Fund for Cancer Research and a Prize for a Cure of Cancer.—Following the announcement that Lord Atholstan of Montreal had offered a prize of $100,000 for the discovery of a cancer cure, he was urged to convert the fund to cancer research work. Instead of doing this Lord Atholstan has announced a donation of a second $100,000 for research.

Louvain to Study Cancer.—A Reuter dispatch from Brussels says that Louvain University has received a legacy of £20,000 to be used toward erecting a special building for cancer research.

High Cost of Medical Education.—President Lowell of Harvard University in his latest annual report raises a question of much interest to the medical profession and especially to medical students. He calls the rise in the expense of medical instruction "prodigious," and adds that it has reached a point where "we must ask ourselves how much can properly be spent on medical education and how much a community can afford to pay for it." In President Lowell's opinion the problem is so serious that he urges careful investigation, and suggests that there be inquiry whether, by improved methods, the equipments of the best medical schools cannot be applied to broader fields of educational service. He would have some plan devised whereby students now attending less highly developed schools might be enabled to benefit by the equipment of the schools that are provided with the best.

Statistics of Metropolitan Life Insurance Company for 1921.—A report of the Metropolitan Life Insurance Company just published announces that 1921 had the lowest death rate ever recorded among 14,000,000 industrial policy holders. The rate was 8.54 per thousand lives, which is lower by 13.7 per cent. than the 1920 death rate, and lower by 31.9 per cent. than the death rate of 1911. The death rate has been cut chiefly because fewer victims were being claimed by tuberculosis, pneumonia, influenza, Bright's disease and industrial accidents. The lower death rates for tuberculosis, organic heart disease and Bright's disease are regarded as evidence that the public health work of the last twenty years has been effective. One cause of death which resulted in greater ravages than ever was the automobile, the 1921 death rate from this cause being more than five times that of 1911. Deaths from alcoholism increased 50 per cent. in 1921 against 1920. The most conspicuous bad spot in the record of the year is the increased death rate for diphtheria. The mortality from this disease was higher than in any year since 1917. This is all the more deplorable because the means for the suppression of case incidence and case fatality should be known to every health officer and every physician in the United States and Canada. The scarlet fever rate was higher than for any year since 1914.

Hospital Notes.—Governor Miller to-day signed the McGinnies bill, which provides for the construction of a new State Hospital for the Insane at Creedmoor, L. I. When this hospital is completed the Kings Park State Hospital will be set aside entirely for World War veterans suffering from mental diseases. There are now 613 veterans being treated in State institutions in the metropolitan district. The bill carries an appropriation of $2,979,782. The hospital will be known as the Brooklyn State Hospital, Creedmoor Division, and will be under the management and control of the State Hospital Commission.

The new $150,000 hospital being erected by the International and Great Northern Railway Hospital Association at Palestine, Tex., is rapidly nearing completion.

The Sycamore (Ga.) Hospital was formally opened on Jan. 10. Dr. J. T. Moore and W. A. Harrison will have charge of the institution.

A hospital costing approximately $30,000 has been planned for Greenwood, S. C.

A modern tuberculosis hospital has recently been opened at Talihina, Okla.

The directors and officers of the National Jewish Hospital, located in Denver, held their annual meeting recently at the Hotel Biltmore, New York. Reports read showed that during its twenty-three years' existence the hospital has treated 4,000 patients, and that 60 per cent. of these were benefited. The financial report showed a deficit of $25,000.

Buffalo Doctors Assail Free Dispensaries.—The Physicians' Protective Association of Buffalo, at a meeting held Jan. 30, adopted resolutions attacking health centers and free dispensaries. The resolution states that there is danger of "pauperization in the form of medical aid," and a condition is developing "that will make it impossible for young physicians to earn a livelihood in the practice of medicine. We have escaped some of the dangers of State medicine and its direful effects," the resolution states; "but influences still exist that are prone to make the practice of medicine a socialized industry, instead of a profession." It is alleged that wealthy persons are treated free of charge by institutions maintained by the city.

To Study Sanitary and Health Conditions in Europe.—Colonel E. C. Gibbs sailed on February 4 for Europe to make a study of typhus, cholera, and other diseases in Poland and Russia for the information of the Health Department and physicians of this city, that intelligent precautions might be taken against any epidemic now raging in Europe.

Mme. Curie an Academician.—The Academy of Medicine of Paris has elected Mme. Curie to fill a vacancy in its membership. This is the first time a woman has ever received that honor.

Women Uphold Vivisection.—The New York City Federation of Women's Clubs, at its fifty-seventh convention at the Hotel Astor on Feb. 2, defeated by an overwhelming vote a resolution that dogs be exempted from scientific experimentation.

Dr. D. W. Scanlan has been elected chief of staff of the Atlantic City Hospital to succeed Dr. C. H. Canning, who has resigned because of ill health.

Dr. Raymond F. Kircher of Albany has been appointed district physician, to fill the vacancy caused by the death of Dr. Eddy S. Haswell.

Dr. Smith Ely Jelliffe has been elected president of the New York Psychiatric Society.

The Medical Section of the American Life Convention will hold its twelfth annual meeting at French Lick Springs, Ind., March 1, 2 and 3, 1922, under the chairmanship of Dr. C. H. English of Fort Wayne, Ind.

The Pennsylvania, New Jersey, and Delaware Branch of the American College of Surgeons will hold its annual convention in Allentown, Pa., on March 27 and 28, 1922. Dr. Charles D. Schaeffer of Allentown is chairman of the committee of arrangements.

Positions Open to Physicians.—The Civil Service Commission of the State of New York announces the following unwritten examinations to be held Feb. 25, 1922: *Assistant Physician and Assistant Surgeon,* State and County Institutions, at varying salaries. Immedate appointments are expected at Letchworth Village at from $1,800 to $2,200 per year and maintenance. *Medical Assistant to Director,* Grasslands Hospital, Westchester County, at a salary of $2,000 and maintenance. Applicants must be duly licensed practitioners of medicine in this State or in some other State. Application forms and further information may be obtained by writing to the Civil Service Commission, Albany, N. Y.

Vacancies for Public Health Nurses.—The United States Civil Service Commission will hold an open competitive examination for the position of consulting public health nurse and to fill vacancies requiring similar qualifications, at salaries of $1,200 to $2,800 per year, and the increase of $20 a month granted by Congress. Further information may be obtained by writing for Form 2118, stating the title of the examination required, to the Civil Service Commission at Washington, D. C., or to the post office or custom house in any large city.

Charitable Bequests.—Under the will of Julius Kayser bequests of $10,000 each are made to the Hebrew Orphan Asylum, Mt. Sinai Hospital, United Hebrew Charities and Montefiore Home, New York.

The New York Ophthalmic Hospital, Flower Hospital, New York, and the Greenwich (Conn.) Hospital will each receive a bequest of $150,000 under the will of Commodore E. C. Benedict of Greenwich.

By the will of the late Mary C. Ihling of Philadelphia the sum of $1,000 is bequeathed to the Home of the Merciful Saviour for Crippled Children, and the sum of $1,250 for the North American Sanitarium for Children at Atlantic City.

Medical Society Elections. — THE SPOKANE COUNTY MEDICAL ASSOCIATION, at its annual meeting held in Spokane, Wash., Jan. 12, 1922, elected the following officers for the ensuing year: *President,* Dr. Carl Weisman; *Vice-President,* Dr. Charles Doland; *Secretary,* Dr. Arthur Betts; *Treasurer,* Dr. Mitchell Langworthy.

THE LEHIGH COUNTY MEDICAL SOCIETY, at its annual meeting held in Allentown, Pa., Jan. 10, 1922, elected the following officers for the ensuing year: *President,* Dr. I. J. Weida; *Vice-Presidents,* Drs. John D. Matz and M. S. Kleckner; *Secretary,* Dr. J. Treichler Butz; *Treasurer,* Dr. W. D. Kline.

THE PIKE COUNTY MEDICAL SOCIETY, at its annual meeting held in Williamson, Ga., Jan. 14, 1922, elected the following officers for the ensuing year: *President,* Dr. J. C. Beauchamp; *Vice-President,* Dr. I. B. Howard; *Secretary and Treasurer,* Dr. M. M. Head.

THE PHILADELPHIA COUNTY MEDICAL SOCIETY, at a stated business meeting held Jan. 18, 1922, elected the following officers for the ensuing year: *President,* Dr. J. Norman Henry; *First Vice-President,* Dr. Ross Hall Skillern; *Secretary,* Dr. William S. Wray.

THE ASSOCIATED PHYSICIANS OF LONG ISLAND (N. Y.), at their twenty-fourth annual meeting held in Brooklyn, Jan. 28, 1922, elected the following officers for the ensuing year: *President,* Dr. Joshua M. Van Cott; *First Vice-President,* Dr. Hugh Halsey; *Second Vice-President,* Dr. Arthur Jacques; *Third Vice-President,* Dr. L. Howard Moss; *Secretary,* Dr. James Cole Hancock; *Treasurer,* Dr. Edward H. Morse.

THE LUTHERAN HOSPITAL ASSOCIATION of Fort Wayne, Ind., at a meeting held on Jan. 21, 1922, elected the following officers: *President*, Dr. H. A. Duemling; *Vice-President*, Dr. W. O. Gross; *Secretary*, Dr. E. H. Schlagel; *Treasurer*, Dr. E. E. Morgan.

Obituary Notes.—Dr. FRANK BATES LIVERMORE of Barberton, Ohio, died from cerebral hemorrhage at Youngstown, Ohio, on Jan. 17, at the age of forty-nine years. He was graduated from Cleveland University of Medicine and Surgery in 1895.

Dr. HOWELL WHITE of Fishkill, N. Y., died suddenly of heart disease at his home on January 23, at the age of sixty-five years. He was graduated from Bellevue Hospital Medical College in 1879.

Dr. ALEXANDER STRONG of New York, a graduate of the College of Physicians and Surgeons, N. Y., in 1871, died of heart disease at his home on January 22, at the age of seventy-five years.

Dr. LOUIS H. LANDMAN of Cincinnati, who retired about a year ago and went to Palestine to practise his profession free among the Jews, died there on January 25, at the age of sixty-three years. He was graduated from Miami Medical College, Cincinnati, in 1895.

Dr. ELLA B. EVERITT, professor of gynecology at the Woman's Medical College, Philadelphia, from which she was graduated in 1891, was killed on January 24 when her automobile collided with a motor truck. She was gynecologist to the Woman's Hospital and to the Philadelphia General Hospital. She was a member of the Obstetrical Society of Philadelphia, the Medical Society of the State of Pennsylvania, the Philadelphia County Medical Society, and the American Medical Association.

Dr. PAUL F. VON SCHELIHA died at Philadelphia on January 18. He was graduated from Hahnemann Hospital and Medical College of Pennsylvania in the class of 1889.

Dr. JAMES FRANCIS SULLIVAN of New York, a graduate of New York University Medical College in 1878, died suddenly of heart disease on Feb. 4, at the age of sixty years.

Dr. CHARLES THATCHER HUBBARD, a graduate of Harvard Medical School in 1861, and a Civil War veteran, died at his home in Taunton, Mass., on Jan. 16, at the age of eighty-one years.

Dr. ROBERT HAZLETT BULLARD of Tridelphia, W. Va., a graduate of the Medical College of Ohio, Cincinnati, in 1877, died on Jan. 11, at Oakmont, W. Va., at the age of seventy years.

Service Bureau.

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Correspondence.

THE HOMER PIGEON IN RURAL PRACTICE.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—Some twenty years ago I wrote an article for your journal on "Homing Pigeons as Medical Messengers or Bulletin Bearers." I have used them in my practice and for pleasure ever since then, and find them fully reliable within their limitations. When the telephone first became common in rural districts I thought the pigeon service hardly worth while, but they render services that the phone system cannot. Many a message of too private a nature to trust to gossipy rural telephone lines has been freely entrusted to these discreet servants. Once I lost the key to my cowhide medicine case and was quite annoyed for a few hours till one of the birds I had left on my morning round returned with the little key attached to his leg.

The World War revived popular interest in these birds to such an extent that there are thousands of users of them in the United States where there were dozens twenty years ago. The Government has done much to encourage their use. Birds which took an active part at the front in France as dispatch bearers have since been the parents of valued racers and workers in this country. Breeding and training them makes a pleasing hobby and it is fascinating to watch the results of crossing different strains, for pedigrees are kept and registered as accurately as those of blooded cattle or horses. Many good looking birds without ancestors trained for flying are worthless for this purpose.

CHAS. L. LANG, M.D.

CATO, N. Y.

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, January 20, 1922.

The Question of Venereal Disease.—There is still no agreement between authorities here as to the best means for coping with venereal diseases. Those who believe in preventive measures support the policy of the Society for the Prevention of Venereal Diseases, the members of which advocate immediate self-disinfection, while those who regard this measure as hard, if not impossible of successful execution and opposed to principles of morality, are in accord with the views of the National Council for Combating Venereal Diseases, which provide for early treatment and for early disinfection to some extent. It seems a pity that these two bodies cannot reach an agreement by compromise. Lord Dawson, the well-known London physician, is of the opinion that steps in this direction ought to be taken. He has written more than one letter to the *Times* for the purpose of advancing this opinion. He proposed that the differences of views would be more easily settled if a conference between the National Council for Combating Venereal Diseases and the Society for the Prevention of Venereal Diseases were held and the following propositions were considered (1) What in the present state of knowledge are the most efficient medical measures for preventing these diseases. (2) How far is it ethically justifiable to apply such measures. Let those, he said,

who have the technical knowledge get together in conference and try to arrive at conclusions on the medical and administrative aspects of the problem, uninfluenced by any ethical prepossessions. Then with such conclusions before them, the medical profession generally and the public must decide whether it is ethically justifiable to found a policy upon them. Such a conference might gain the support of the Ministry of Health. A few days later Lord Dawson wrote again to remove some misconceptions his previous letter appeared to have aroused. He explained in this letter that something wider than a mere joint meeting of the two opposing societies was needed. These societies were too deeply committed on both the medical and ethical aspects of the problem to constitute alone the best tribunal of inquiry. The political method of give and take was not suited to scientific investigation. His hope was that some impartial body possessing the confidence alike of the public and profession would gather together a body of experts, representative not only of the societies, but of skilled medical opinion outside the conflict, to investigate thoroughly and without prejudice what are the best medical measures for preventing the disease. A conference took place on October 22 between the Standing Joint Committee on Venereal Disease of the Medical Women's Federation and a deputation from the Society for the Prevention of Venereal Diseases. However, as the Council of the Medical Women's Federation made it a condition of the meeting that no report of the conference should be published without the written consent of those present, and as the Medical Women's Federation flatly refused to give this consent, nothing has been made public with regard to the proceedings on the opinions expressed, again at a conference of Medical Officers of Health, Venereal Diseases Officers, and other specialists in the treatment of venereal diseases, to be held in Edinburgh on January 24, although the entire matter is to be fully dealt with, the proceedings will be conducted in private and those who accept the invitation to be present, or who take part in the discussion, will be understood to consider any opinions they may themselves express or that may be expressed by others as confidential. It seems that a conference on the lines suggested by Lord Dawson might serve a good purpose by ventilating opposing views and thus might clear away some of the misconceptions which now exist. True, a discussion of the question might not bring about any tangible result. On the other hand, it might aid in smoothing away some of the difficulties in the way of an understanding, and as said before a compromise might be reached.

Obituary.—I mentioned in my last letter that I hoped to be able to give some further and more intimate details of the late Sir German Sims Woodhead, for many years Professor of Pathology in the University of Cambridge. Dr. W. E. Carnegie Dickson, who was assistant of Professor Greenfield, the great Professor of Pathology in Edinburgh, and who married Miss Greenfield, has been good enough to obtain for me a few personal reminiscences of Woodhead. But before quoting these it will be in place to give a more full account than given in the previous letter, of the Cambridge professor's career. Woodhead was by birth a Yorkshireman, the eldest son of the late Joseph Woodhead, editor and proprietor of the *Huddersfield Examiner*. He was a medical student of Edinburgh University, took there the degree of M.D. in 1881, obtaining for his thesis the gold medal. He also studied in Berlin and Vienna and in 1882 became F. R. C. P. Edin. On his return to Edinburgh he was appointed Demonstrator of Pathology at the university and came into somewhat close touch with the well-known Dr. Rutherford, Professor of Physiology. Before receiving the appointment of Professor of Pathology in Cambridge University he held several important posts. He came to Cambridge in 1899. He was unfortunate in this respect that in all his appointments he had first to fit up and organize the laboratories, of which he was in charge. Of course this occupied a great deal of time which might have been more profitably expended in research work and in his legitimate work. He was an earnest and enthusiastic worker and an especially kindly and careful teacher. At the outbreak of the war, although he was then in failing health, he immediately placed his services at the disposal of the War Office. He served during the war in various localities, did valuable work, and in 1917 was made Inspector of Laboratories in Military Hospitals in the United Kingdom. His war duties tried him severely, especially those of inspector of laboratories involving as they did long and frequent journeys by rail and motor. For his military services he was made K. B. E. in 1919. Woodhead was appointed senior assistant and demonstrator to Professor Greenfield in 1881, a position he held for six years. In an appreciation of Greenfield, written by Woodhead, he said that during the period he was with him he came without abating one jot of his admiration for Hamilton, to appreciate the sterling qualities that had gained for Greenfield the good opinion of Burdon-Sanderson, Paget, Lister, and men of similar standing and withal the appointment to the chair. There is no doubt that Woodhead's connection with Greenfield was of immense advantage to him and probably his six years with him paved the way to his subsequent appointment at Cambridge. Woodhead was a staunch, indeed an ardent advocate of temperance, but he also possessed the saving grace of a keen sense of humor. One of the little episodes that used to delight and entertain his brother pathologists at the dinners of the Pathological Society of Great Britain was when they prevailed on Woodhead to sing "At the Tavern Door." He would rise with a self-depreciatory air, push his fingers through his hair, in order to give himself a most disreputable appearance and then proceed with the song. It explained fully the effects and delights of alcohol, and how the observer from the said tavern door was able to observe two moons and other curious phenomena and how after such observations he turned back to the tavern just for "another." This showed the kindly and tolerant nature of the man. But kindliness and tolerance were essential characteristics of the man who, deeply religious himself, viewed with infinite sympathy and under-

standing the failings of his brother. Indeed, he was one of the most lovable and truest of men, who deemed no trouble too great to aid anyone who was in need of assistance or encouragement. It may be of interest to state that only ten days before his death he was at Dr. Carnegie Dickson's house in London to discuss the details of the Greenfield Memorial Prize. Woodhead's name will go down to posterity as a first-class pathologist, but what is even better as a good man, a true lover of his kind. He was particularly fond of children.

LETTER FROM SWITZERLAND.

(From Our Own Correspondent.)

GENEVA, Feb. 1, 1922.

The Third Congress of the History of Medicine will meet this year in London from July 17 to 22. The subjects to be discussed are: (1) The epidemic and endemic foci in medieval times, and (2) the history of anatomy. After the number of papers to be presented on these topics is known, a certain number of seances will be allotted to members contributing memoirs on various subjects. At the present writing a full attendance may be confidently expected. The program will unquestionably be very attractive, and London is apt to be at its best in July.

Fatal Result of a Students' Duel.—A German student, Karl Walter, of the University of Jena, has been sentenced by the court of Rudolstadt in Thuringia to six months imprisonment in a fortress for killing, in a duel, a fellow student named Wissens. The two belonged to rival students' associations, and fought in the traditional manner with light swords, body paddings, gauntlets, spectacles, and all the other paraphernalia that had come down from their equally unenlightened ancestors. In the course of the duel, Walter got home with his sword on Wissens with such effect that the latter's skull was cut through. Septic poisoning and cerebral inflammation followed—the principles of Lister are always treated with fine scorn on these occasions—with the result that Wissens died in hospital after an operation. Duelling was technically forbidden by law, even under the monarchy, but was lightly treated because it was thought to foster the military spirit. That these things have not materially changed under the republic is shown by the proceedings at Rudolstadt. The court found Walter technically guilty, but in consideration of "the fact that his adversary must have had a very thin skull," it inflicted the usual nominal sentence.

Osteomalacia in Children.—Some recent work on osteomalacia in children, which has not as yet found its way into the medical press, has been carried out by Dr. M. Molcho of Bazarkdjik, Bulgaria. He concludes that this disease must no longer be considered as an affection special to adult age, but should also have a place in infantile pathology. Osteomalacia arising in children over five years of age can readily be differentiated clinically from rickets, but during early life the two morbid processes are much harder to diagnose. The disease does not appear to have any particular predilection for either sex, girls being as frequently afflicted as boys. The pathogenesis remains to be elucidated, but in accord with Hutinel, Molcho believes that of all the hypotheses so far put forward, that of the secretions of the endocrine glands—thyroid, hypophysis, and suprarenals—is probably nearer the truth. From the viewpoint of diagnosis, infantile osteomalacia offers characteristic clinical symptoms and radiographic and pathological data. The evolution of the affection is relatively slow, especially when an early diagnosis has been made and adequate treatment instituted early in the evolution of the process. But the prognosis is bad, as these subjects, being in a condition of lessened resistance, usually die from some intercurrent affection. The treatment is both surgical and medical, but the former should be abstained from whenever possible. Proper feeding, good hygiene, tonics, and especially the exhibition of the extracts of thyroid, hypophysis, and suprarenals appears to be the best practice, at least for the present.

Typhoid Fever in Vaccinated Subjects.—A good deal of attention has been given of late to the question of typhoid fever occurring in vaccinated subjects, and I think the present status of this subject, as viewed by the continental profession, may be summarized briefly as follows: If the term typhoid fever be taken in its purely clinical sense, hence comprising the paratyphoids as well, the disease is frequently encountered during epidemics in subjects previously vaccinated, no matter what vaccine has been employed. A distinction must be made between typhoid fever occurring in subjects who have been vaccinated for a proper length of time with a sufficient dose of dead bacilli and that developing shortly after a hasty vaccination. In the first case, when the typhoid appears in previously vaccinated subjects, it follows a mild evolution and is frequently accompanied by relapses—in which case the process may in reality be a paratyphoid. The value of vaccination is proved by the absence of serious cases and by no fatalities.

In the second category of cases—the typhoid developing soon after an emergency vaccination—the clinical aspect of the disease closely resembles that in a non-vaccinated subject. Nevertheless, the gravity as a rule is much less the longer the time ensuing between the febrile onset and the injection of dead bacilli. In other words, the injection appears to weaken the defensive properties of the organism when it is given at the time when dissemination of living virulent germs has actually occurred. But when it is given before the living bacteria have had time to undermine the economy, it fortifies the defensive action of the organism. In 1915, Menville (Thesis, Paris) distinguished typhoid fever developing after a single injection of 500,000,000 bacilli and that following two injections, the first of 500,000,000, the second of 1,000,000,000. Typhoid fever in the first category is the more frequent and its evolution does not appear to be influenced in any way by the vaccination, for serious cases are not uncommon. Absence of reaction after the injection is the rule. In many instances where the patient is vaccinated a week or ten days before the advent of pyrexia the disease has a mild evolution.

There are two different types of onset. In the first a phase of perfect health separates the injection from the onset, in the second this phase is marked by a series of malaises. The existence of this clinically confirmed period of incubation in subjects who do not become actually ill until more than two weeks after vaccination should lead one to suspect that the injection was given to individuals already carriers of the bacilli. After the lapse of four weeks following vaccination typhoid becomes less frequent, but assumes a medium intensity, the patient reacting as if he had not been vaccinated. After two successive injections the results are similar, and it is to be noted that a second injection made in the incubation period of typhoid fever aggravates the prognosis of the disease. The prognosis is invariably better if the second injection precedes the onset of the typhoid by one to three weeks. The majority of cases develop about a fortnight after the vaccination and during this time many complain of feeling ill, probably because they are latent carriers of living virulent bacilli. Hence in practice it is not well to give massive doses of vaccine during epidemics as a prophylactic, repeated and progressively increasing doses being far better. Subjects who have been methodically vaccinated some time previously are not completely protected against the disease, but in them it will be mild. Subjects vaccinated during an epidemic with massive doses will probably have an attenuated form of the disease unless vaccination is done at the onset of the typhoid.

Progress of Medical Science.

Boston Medical and Surgical Journal

January 26, 1922, clxxxv, 4.

1. The Treatment of Carcinoma of the Prostate. John H. Cunningham.
2. Some Figures on Cesarean Section. John M. Birnie.
3. Jejunostomy. Irving I. Walker.
4. Cesarean Section—Death on the Tenth Day from Cerebral Hemorrhage. R. S. Titus.
5. A Tribute to a Pioneer in Modern Pathology. J. C. Warren and S. J. Mixter.
6. The Responsibility for Diphtheria. Joseph Garland.

1. The Treatment of Carcinoma of the Prostate.—John H. Cunningham states that the difficulty in dealing successfully with carcinoma of the prostate surgically is dependent chiefly upon the fact of the relatively slow development of the local focus and the relatively rapid dissemination of metastases. From the diagnostc standpoint there are certain subjective symptoms and objective findings which, in many instances, differentiate carcinoma of the prostate from benign hypertrophy. Early metastases in the pelvic nodes, resulting in sciatic nerve pressure and giving the usual symptoms of sciatica, are common, and not infrequently the most pronounced symptoms of which the patient complains. With such pain radiating to one or both sciatic regions, there is often an associated sacral and groin pain, all of which subjective symptoms should excite suspicion of malignant disease of the prostate with pelvic metastases. If during the preoperative examination a condition in the gland is discovered which excites suspicion of carcinoma, a complete *x*-ray examination of the whole skeleton should be made, as bone metastases, both osteoplastic and osteoclastic, are not uncommon. It is today generally admitted that radical operation as a curative means is futile. All that can be accomplished is to relieve the local condition either by operation, combined with radium therapy in certain instances, or by radium therapy alone. In a large group of patients including those with few distressing symptoms of prostatic obstruction and those with recurrence of the disease locally, following operation, Cunningham has adopted a combination of the methods of radium therapy employed by Barringer and by Young. He supplements the treatment as employed by Barringer by the method employed by Young about three weeks after the needling. The treatments consist in making daily applications of radium for 100 millicurie hours by means of a special instrument introduced into the prostatic region through the rectum, urethra and transvesically. The results of this treatment have proven conclusively to the writer's mind that radium employed by the Barringer or Young method has a strikingly beneficial result.

2. Some Figures on Cesarean Section.—John M. Birnie refers to an article in the *Journal of the American Medical Association* for Febraury 24, 1917, in which a writer on cesarean section gives the mortality as over 50 per cent. in several good-sized cities near Boston, and says that no doubt similar figures obtain in other parts of the country. He felt that the mortality in Springfield was not "surprisingly high" and has endeavored to ascertain what the actual figures were in his community and what the pregnant woman might expect from the procedure in the hands of local operators. In 12½ years 217 cesarean sections were performed in five hospitals in Springfield. Two of these were performed by surgeons from a distance and are excluded from the series, leaving 215 cases. The maternal mortality in the series was 11 per cent., which compares favorably with Davis's figures from the New York Lying-in Hospital, namely, 10.7 per cent. in a series of 571 cases. The fetal mortality in the Springfield series was 20.5 per cent. In the series there were 53 cases of severe toxemia with a maternal mortality of 24.5 per cent. and a fetal mortality of 21.8 per cent. If these could be excluded from the series the maternal mortality would be 6.1 per cent. De Lee gives the maternal mortality in eclampsia as from 20 to 45 per cent., and the fetal from 30 to 60 per cent. These figures, the writer asserts, show not a "surprisingly high mortality," but an astonishingly low one.

3. Jejunostomy.—Irving J. Walker makes a plea for the early use of jejunostomy as a surgical measure. In conditions such as carcinoma of the esophagus: ulcer of the cardiac end of the stomach where removal is impossible; obstruction of the pyloric end of the stomach, due to cancer or ulcer; bleeding ulcer of the stomach or duodenum; in certain cases of nausea and vomiting of pregnancy; in persistent vomiting with localized peritonitis, and in certain forms of intestinal obstruction, iejunostomy constitutes a procedure by which intestinal gas and toxic material may be well cared for and through which nutrition, drugs, and fluids can be introduced, and which, if utilized in time, is a life-saving measure.

Journal of the American Medical Association.

January 28, 1922, lxxviii, 4.

1. The Therapeutic Effect of Venesection, with Particular Reference to Lobar Pneumonia. W. F. Petersen and S. A. Levinson.
2. When to Operate and When to Use Radium on Fibroids of the Uterus. George Gellhorn.
3. Myasthenia Gravis: A Therapeutic and Clinical Study. Charles L. Dana.
4. Spinal Drainage Without Lumbar Puncture: A New Method for Increasing the Penetration of Arsenic Into the Spinal Fluid in the Treatment of Neural Syphilis. Budd C. Corbus, Vincent J. O'Conor, Mary C. Lincoln and Stella M. Gardner.
5. Nephritis and Urinary Calculi After Production of Chronic Foci of Infection: Preliminary Report. Edward C. Rosenow and John G. Meisser.
6. A Continuous Knotted Loop Suture: Its Field of Application. Joseph Rilus Eastman.
7. Dermatomyositis, with Report of Two Cases. Walter R. Steiner.
8. The Relationship Between Xerophthalmia and Fat Soluble A. Sidney Walker, Jr.
9. Chaulmoogra Oil in the Treatment of Tuberculous Laryngitis. R. M. Lukens.
10. Acetylsalicylic Acid in Sodium Citrate Solution. Paul Nicholas Leech.
11. Bacillus Welchii in a Public Water Supply as a Possible Cause of Intestinal Diseases. Herbert B. Larner.
12. A Guinea Pig Rapid Method for the Diagnosis of Tuberculosis. H. R. Miller.
13. The Preparation of Food Allergens in Tablet Form for the Intracutaneous Test. Bryce W. Fontaine.
14. A Universal Thomas Splint. Frederick C. Warnshuis.
15. Poisoning by Shoe Dye. R. E. Cloud.

16. Report of Case of Twist of Fallopian Tube. Gaylord T. Bloomer.
17. Carotinemia in an Adult. Caroline McGill.
18. Hydrostatic Eye Douche. E. Webster Fox.
19. A Case of General Dermatitis Due to the External Use of Orthoform. Jacob Rosenblum.

1. The Therapeutic Effect of Venesection, with Particular Reference to Lobar Pneumonia.—W. F. Petersen and S. A. Levinson call attention to certain alterations in the blood brought about by venesection which may account for the therapeutic effects not infrequently noted by capable clinicians of the older school as well as by more recent observers. Among these changes are the well-known alteration in the coagulation balance and the reactive polymorphonuclear leucocytosis, the increase in nitrogen excretion, increased nonprotein nitrogen content of the blood, alteration in the lipoid balance, hyperglycemia and diminution in the alkali reserve after bleeding. Attention has also been called to the splanchnic stimulation which occurs after hemorrhage. As evidence of the physical alterations in the serum it had recently been shown that the Kottmann reaction becomes positive after bleeding, that the serum antiferment is in most instances diminished, and that the sedimentation time of the red blood corpuscles in the plasma is altered. The alterations above enumerated indicate that we must consider bleeding as a form of protein therapy. As to which of them may be considered the primary cause in this form of protein therapy is, of course, undetermined. The writers call particular attention to another factor which seems to them to be of importance in the explanation of the therapeutic effect of venesection in lobar pneumonia, namely, the ferment-antiferment balance that exists in the pneumonic exudate of the consolidated lung between the amount of enzyme present (protease and ereptase from disintegrating polymorphonuclear leucocytes) and the antiferment of the plasma and tissue exudate. Venesection may have a direct influence on this balance. The depletion of the fluids in the vascular bed results in a prompt compensation in fluids drawn from the tissue spaces. The direction of the current would be from the exudate to the circulation. The amount of antienzyme would therefore be somewhat diminished. Again, the serum after bleeding has less antiferment than normally, that is, the fluids reaching the focus would have less inhibiting substances than before. So, too, diminution in the alkali reserve would tend to increase the acidity of the exudate. There are, then, at least three alterations following phlebotomy that seem of importance in directly influencing the anti-ferment balance of the exudate in the direction of acceleration of proteolysis. In addition to these alterations, which have a special importance in lobar pneumonia. there is a general plasma-activation which seems definitely associated with hemorrhage, which the writers have previously discussed.

3. Myasthenia Gravis.—Charles L. Dana makes observations on 14 cases of myasthenia gravis covering a period of more than twenty-five years. Nine of these 14 patients lived on from two to seventeen years, thus giving evidence of a better prognosis than is usually furnished in this disease. This difference in the course of the disease Dana believes is due in part to the treatment given the patients, namely, massive doses of strychnine. Fifty per cent. of this series had prodromal seizures consisting of diplopia or other symptoms of oculomotor weakness, with or without some bulbar weakness. The disease cannot with certainty be diagnosed unless eventually it shows bulbar or eye symptoms, or unless without this the course of the disease shows remission or recurrence. The writer finds that after a patient has passed through a serious attack, later attacks are more amenable to treatment. In several of these cases myasthenic myotonia, a symptom not much referred to, was noted. In this series some confirmation is given the view that in myasthenia gravis there is a pluriglandular involvement.

4. Spinal Drainage without Lumbar Puncture: A New Method for Increasing the Penetration of Arsenic into the Spinal Fluid in the Treatment of Neural Syphilis.—Budd C. Corbus, Vincent J. O'Conor, Mary C. Lincoln and Stella M. Gardner base their observations on the finding of Weed and McKibbin that intravenous injections of hypertonic saline solution cause an initial rise in the pressure of the cerebrospinal fluid followed immediately by a marked fall in this pressure, often below zero, and also that there is noted immediately a marked decrease in the size of the brain. They believed this phenomenon offered a possible method for increasing the amount of arsenic that could be carried into the spinal fluid after intravenous injection. Therefore, one hundred c.c. of hypertonic saline solution was administered intravenously and six hours after 0.9 gm. of neoarsphenamine was given by the same route. The procedure was carried out in 28 cases together with observations on the spinal fluid. The spinal fluid pressure taken at the end of eight hours was found to be within normal limits. Arsenic penetrations following this method were found to be as constant as, or better than, any method that has been suggested up to the present time.

5. Nephritis and Urinary Calculi after Production of Chronic Foci of Infection: Preliminary Report.—Edward C. Rosenow and John G. Meisser report that they have performed a series of experiments in which the pulps of teeth in dogs were removed and the pulp chambers infected with freshly isolated bacteria from various diseases, among them nephritis and nephrolithiasis. The canals were then sealed with impervious dental cement. Catheterized specimens of urine were examined at intervals and in the experiments on nephrolithiasis *x*-rays of the kidney region were taken at intervals. Lesions developed in the kidneys of these dogs which were essentially focal in character. The type of cellular infiltration and other changes resembled closely those of acute interstitial nephritis. The general picture in the dogs was somewhat different from that of patients with advanced nephritis. However, the character of the lesions indicated that, if the experiments had been of longer duration, the picture might have become more like that of well advanced nephritis. Five of six dogs infected with streptococcus from the urine of patients with nephrolithiasis developed calculi; the sixth dog died too soon for stones to form. The findings in these dogs resembled those in patients in this condition. The writers are convinced that the causal relationship between the calculi and the streptococci inoculated into the teeth is established.

10. Acetylsalicylic Acid in Sodium Citrate Solution.—Paul Nicholas Leech has investigated the claim that acetylsalicylic acid may be dispensed in a solution of sodium citrate without decomposition of the acetylsalicylic acid. The experiments that he reports show that this is incorrect; that after four days the acetylsalicylic acid is broken down to the extent of 50 per cent: after nine days to 75 per cent., and that in seventeen days it is almost completely hydrolyzed.

The Lancet.

January 7, 1922. ccii. 5132.

1. An Address on Body and Mind: The Origin of Dualism. Frederick Mott.
2. Chadwick Lecture on Ventilation and Efficiency in Factories. Leonard Hill.
3. Treatment of Tuberculosis. Henry Spahlinger.
4. Chorion-Epithelioma. J. M. Munro-Kerr.
5. Venous Angioma of the Cerebral Cortex. Harry Campbell and Charles Ballance.
6. Bilaterial Interstitial Ruptured Ectopic Gestation Sacs. A. E. M. Woolf.
7. The Fixation Abscess. A. T. Todd.
8. The Significance of Digestion Leucocytosis. D. Noel Paton.
9. General Properties of Colloids. W. M. Bayliss.
10. Obstruction of Pelvic Colon by Pedicle of Ovarian Cyst. G. S. Woodman.
11. Anastomotic Ulcer. J. Wilmot Adams.
12. Colloidal Manganese in Hodgkin's Disease. Robert Samut.
13. Congenital Tumor in a Baby. R. Handfield-Jones.
14. The Role of Heredity in Thyroid Pathology. Pierre Valery Radot.
15. The Treatment of War Injuries of the Spinal Cord. René Dumas.

3. Treatment of Tuberculosis.—Henry Spahlinger bases his method of treating tuberculosis on two different therapeutic principles according to the nature of the disease. These are (a) passive immunization and (b) active immunization. Passive immunization, or serum treatment, applies to acute cases. It aims at progressive disintoxication. Spahlinger claims that the different symptoms of intoxication are not due to varying manifestations of the toxin, but to different toxins, each of which is separately used in the preparation of

a "partial" serum. The various toxins which serve for the preparation of three types of "partial" sera are: (1) Antitoxins obtained by means of several exotoxins secreted by Koch's bacilli in the culture medium. (2) Anti-endotoxins, obtained by means of poisons derived indirectly from the bacillary bodies. (3) Antibacterial sera, obtained by injecting a horse first with dead and then with living microbes, the animal having been previously submitted to a long progressive and intensive vaccination. The proportion of these three types of antibodies present in the combined serum varies according to the type of case under treatment. For pulmonary tuberculosis there must be predominance of antitoxins, for surgical tuberculosis predominance of anti-endotoxins. The treatment of pulmonary tuberculosis requires, in addition, the administration of antitoxins and antibacterial sera against mixed infection. These are prepared from the principal pathogenic germs which grow in the tuberculous lesions of the lungs. The injections of antibodies are made subcutaneously two or three times a week, sometimes every day, or several times a day in acute cases. Passive immunity is of very short duration; therefore the treatment with antibodies has to be continued uninterruptedly until improvement has been obtained. Active immunization is applicable to cases of chronic afebrile pulmonary tuberculosis, to non-pulmonary forms and to predisposed cases. The leading principles of this vaccine treatment are: (a) To obtain immunity against tuberculosis by means of separate immunities conferred by different components of Koch's bacilli progressively applied. The different vaccines are given in a sequence which enables the organism to utilize them. (b) The maintenance of the strictest specificity of the antigenic elements. (c) The use of the bacillary endotoxins robbed of their ectotoxins. (d) The mixture of antibodies with some of the antigens facilitates active immunization and avoids undesired reactions. The treatment extends over a period of a few months, usually not more than six, and whenever possible should be carried out in a sanatorium, hospital, tuberculosis dispensary, or by a specialist well acquainted with the technique of active immunization. A number of cases are cited to demonstrate particular points in the treatment.

7. The Fixation Abscess.—A. T. Todd calls attention to a type of treatment little known in England, but much practised in France, that is, the fixation abscess produced by the subcutaneous injection of turpentine. The rational indication for the employment of the procedure would limit it to those conditions in which "phagocytosis" is believed to play a part in the process of recovery, and when there is reason to believe this is not progressing satisfactorily. At the present time the method is being employed in bronchopneumonia of the influenzal type and pneumonia generally. It has been used in other septicemic conditions, including the puerperal sepses, and in the treatment of encephalitis lethargica. When the abscess develops promptly after the injection the prognosis is good, and conversely, a failure to take, especially after a second attempt, is of very grave significance. The writer has treated nine severely ill cases by this method, supplemented only by cardiac stimulants. Most of the cases were chosen for the treatment because, after due observation extending over several days, it was considered that the patient was going down hill and that there was no hope for recovery by the usual methods of treatment. Of these cases only three died, and one of these died on the same day. If a suitable site is chosen and other suggestions carried out, the abscess may be induced without causing too severe pain.

14. The Rôle of Heredity in Thyroid Pathology.—Pierre Vallery Radot mentions and discusses briefly some of the conditions which have been described as standing in etiological relationship to disturbances of thyroid function, notable acute infectious diseases, tuberculosis, syphilis, alcoholism, emotion, traumatism, and certain of the conditions associated with the reproductive function in women. He comments on the frequency of the infections and of syphilis and the relative infrequency of exophthalmic goiter, and then develops the thesis that heredity takes a prominent part in the causation of thyroid affections, the transmission being by glandular tendencies rather than by any nervous inheritance or predisposition. It has been shown that thyroid disorder of parents determines in their offspring certain conditions such as rarity of birth, poor development, malformations of bone, shortness of life, and lastly, myxodema; the successful result of thyroid treatment has also been demonstrated. This knowledge of the rôle of heredity in lesions of the thyroid has, above all, a prophylactic interest. It permits at times of diagnosis of disorders in the parents which enables treatment of their children to be directed against the real cause of disease. It is important to treat parents showing even the least signs of thyroid affections because a very light thyroid weakness in the mother may give rise to a clearly characterized syndrome in the progeny, and vice-versa. Wet nurses should be examined from this point of view.

British Medical Journal.

January 7, 1922, 1, 3184.

1. An Address on Certain Aspects of Pain. Henry Head.
2. An Address on Problems Involved in the Congress of Sexes in Man. Arthur Thomson.
3. Observations on Secretion into the Stomach and Duodenum: with Special Reference to Diabetes Mellitus. T. Izod Bennett and E. C. Dodds.
4. Hemiplegia in a Young Child, Followed Later by Locomotor Ataxia. William Caldwell.
5. Asthma and the Radium Menopause. J. N. McBean Ross.
6. A Note on the Treatment of Squint. Henry Smith.
7. Pulsatilla in Dysmenorrhea. Frederic C. Coley.
8. Obstruction of the Pelvic Colon by the Pedicle of an Ovarian Cyst.
9. Eruption Resembling Varicella in Lobar Pneumonia. William Salisbury Sharpe.
10. The Operation of Cholecystgastrostomy. Gerald Ralphs.

1. Certain Aspects of Pain.—Henry Head summarizes the known physiological facts regarding pain sensations and sets out some important points in their interpretation. He considers particularly pain of visceral origin. So long as the internal organs are discharging their functions normally the afferent impulses which they originate do not enter the consciousness. This Head explains by suggesting that the cerebral cortex, which is responsible for the discriminative functions of sensation, exercises a dominant influence over the lower centers, represented by the optic thalamus, whose reactions are impulsive and urgent. These impulse reactions may be evoked either by a noxious stimulus, which reaches a high enough grade of intensity to overcome the inhibition of the cortex, or by disease or injury interfering with the paths through which the cortex normally exerts its control. But even when no such interference exists there is reason to think that once the path has been opened and dominance of the higher centers overcome a weaker visceral stimulus will be followed by sensation, so that long-continued visceral irritation may give rise to pain from apparently inadequate causes. If the pain is extremely severe it may spread widely even in normal persons. Should a referred pain become chronic this forms an even more important cause for its diffusion. Menstruation, anemia, and debilitating psychological states, such as worry or emotional shock, may produce similar effects. Occasionally, central resistance to potentially disagreeable impulses is temperamentally so low that pain may occur without any obvious cause for peripheral stimulation. In such cases the order in which the phenomena appear does not follow rules that can be laid down for pain of visceral origin. However, much knowledge may be gained by a study of pains arising from visceral disease, though they cannot be interpreted without a knowledge of the relation of afferent impulses to the segments of the central nervous system. As an illustration Head cites the common condition produced by tension within the aorta which produces pain referred to the sixth and seventh thoracic and adjacent segmental areas. On the other hand diseased conditions of the aorta and the ventricle may be associated with similar areas higher up on the chest, or in the region of the third or fourth cervical. The explanation of this distribution is found in the embryological development of the heart. It is not usually recognized that tenderness, due to afferent impulses from some organ in the thorax or abdomen, may be accompanied by areas of tenderness in the scalp. The site of the headache and tenderness does not indicate directly the organ which is responsible for their production, but depends more on the segmental level of innervation of the painful focus than on the actual organ affected. Thus the

higher the areas of tenderness upon the trunk, the further forward will they be found upon the scalp and vice versa. This, Head points out, is an aspect of referred pain arising from visceral disease that has been unaccountably neglected.

3. Observations on Secretions into the Stomach and Duodenum with Special Reference to Diabetes Mellitus.—T. Izod Bennett and E. C. Dodds have been able to establish by a series of observations on healthy men that the rise of carbon dioxide tension following a meal corresponds very exactly to the extent of acid and alkali into the stomach and duodenum. Confirmation of this is given by the curves of alveolar carbon dioxide pressure from subjects with varying degrees of gastric secretion, or with pancreatic insufficiency. Further confirmation is supplied by the results of experimental introduction of food direct into the duodenum. The application of atropine to the mucosa of the stomach or duodenum appears to arrest the secretion of acid or alkali into the organ to which the drug is applied. The writers believe that, like salivary and gastric secretion, pancreatic secretion must be a slow continuous process interrupted by a more vigorous flow whenever food traverses the pylorus. The fasting level of alveolar carbon dioxide tension in any subject represents a balance between the continuous loss from the blood stream of acid via the stomach, and alkali via the pancreas and duodenum. Cases of severe diabetes frequently show a slow fasting level of alveolar carbon dioxide tension even when no ketosis is present. Cases of severe diabetes investigated by the writers have, after a test meal, shown a fall of alveolar carbon dioxide tension greater than that seen in any other condition so far examined. It is suggested that this is due to a condition of hypersecretion of the pancreas, analogous to the gastric hypersecretion seen in cases of Reichmann's disease.

5. Asthma and the Radium Menopause.—J. N. McBean Ross reports the case of a woman 47 years of age in whom the menopause was artificially induced by the introduction of radium into the uterine cavity. This was followed by exceedingly troublesome asthmatic attacks and a purulent secretion from both antra. The patient gave a history of having had an operation on both maxillary antra for acute suppuration in 1906. It was assumed that the asthma was an anaphylactic condition caused by organisms from the nasal discharge. The nose and antra were put thoroughly in order and autogenous vaccines administered without any improvement as to the asthma or the patient's general condition. Every endeavor was made to find the cause of the asthma and every known treatment tried without avail. Finally, when a fatal issue seemed imminent, thinking that the menopause might be a factor in the condition, the patient was given by the mouth ova-mammoid compound, consisting of ovarian extract 1 grain and mammary extract 1 grain, four times daily. The result was both unexpected and striking. On the following day the asthma and bronchitis, which for a year had never been absent, were markedly improved; by the third day the asthma had entirely disappeared. The woman at the present time was to all intents and purposes cured. In asthma two factors may be at fault and both must be treated to obtain a satisfactory result.

The Practitioner.

November, 1921.

1. Diabetes Mellitus. W. H. Willcox.
2. Some Points in the Surgery of the Right Iliac Fossa. Joseph E. Adams.
3. The Treatment of Cardiospasm. N. Mutch.
4. Recurrent "Colds in the Head." Fred Stoker.
5. Nonthyrotoxic Goiter. E. G. Slesinger.
6. Three Cases of Fracture of the Scaphoid Bone (Wrist). F. D. Saner.
7. A Review of 150 Cases of Surgical Operations under Local Anesthesia. K. S. Ray and L. M. Sen.
8. Note on Familial Jaundice. J. B. C. Brockwell.

3. The Treatment of Cardiospasm.—N. Mutch mentions some of the methods that have been employed in the treatment of cardiospasm and states that in the fully developed disease, permanent and complete relief can only be obtained by paralytic dilatation of the cardiac sphincter. Stretching must be so severe as to paralyze the muscle temporarily, much in the manner as temporary paralysis of the sphincter ani is secured by stretching in the treatment of certain diseases of the rectum. The earliest attempts to accomplish this were made from below the diaphragm at laparotomy. The best method, however, is to introduce a rubber bag into the upper orifice of the stomach and then distend it until the sphincter has been sufficiently stretched. A gum-elastic esophageal tube is used, which is closed at the lower end, but perforated laterally two or three inches from the point. Over these holes a rubber bag is fitted and is prevented from overdistention by a stout silk fabric incorporated in its walls. At lower tensions the bag is narrower in the middle than at the end, so that it does not tend to slip out of position after it has been inserted through the cardiac orifice. At higher tensions it becomes widest in the middle, and so exerts its greatest distending action at this point. At the upper end of the tube a small stopcock is fitted. At the lower end is a metal olive pierced for the reception of a silk guide. Water is chosen as the distending medium because, at the pressure used, its volume remains constant. In the event of the bag breaking no explosive force is brought to bear on the esophagus such as would follow the rupture of a bag of compressed air. The most convenient source of pressure is the water main, and the pressure can be measured by attaching a manometer. The pressure should be equal to about twenty-four feet of water. The procedure of dilatation is carried out with the patient seated before an *x*-ray screen so that the bag may be properly located half way through the cardiac orifice. The prospect of permanent cure which this method offers is very great. The best records are those of Plummer, who followed up the subsequent histories of about 100 cases of severe, uncomplicated cardiospasm, treated by forcible dilatation. Eighty-one per cent. were completely cured; 12 per cent. were partially relieved, and the remainder could not be traced or had died of intercurrent disease.

5. Nonthyrotoxic Goiter.—E. G. Slesinger points out that while malignant goiter is far from common, it is a most interesting condition in that the pathology of some of the varieties met with is as yet far from clear. Ninety per cent. of the cases develop in a preexisting goiter, and more than 60 per cent. of the patients are over 40 years of age. The epithelial tumors are particularly interesting, some of them being very much on the borderland between innocent and malignant growths. He tabulates these as follows: (1) Carcinoma, when it occurs in the thyroid, forms a hard, nodular tumor, very like carcinoma mammæ, both to feel and on naked-eye section. It behaves very much like carcinoma elsewhere, metastasizing by way of the lymphatics, and its sole peculiarity is a decided predisposition to form secondary deposits in a bone. (2) The so-called malignant adenoma is a curious tumor which occurs in a single nodule of growth. It is soft and cuts like marrow, and on section shows large polyhedric fields of cells, with numerous sinusoid blood-spaces. The vesicles are irregular, and lined usually with one layer of cells, in close relation to the blood spaces. The growth tends rapidly to invade the veins, and the whole picture is very similar to a section of the developing organ. (3) Metastatic colloid goiter is an extremely rare condition, which is of very doubtful malignancy. Histologically the gland is indistinguishable from ordinary colloid goiter, and the sole unusual feature is its metastasizing power. It spreads by the vascular route, and is prone to form deposits in the bones. Even when these occur, however, cases have lived as long as 17 years. While there is insufficient evidence by which this form of goiter can be satisfactorily grouped, it would appear probable that it is incorrect to include it among the malignant growths of the thyroid. The secondary deposits in this condition have been shown, in some cases, to secrete what is apparently normal thyroid secretion. (4) Parastruma is an interesting and rare tumor in which a hard nodular mass forms in the thyroid, grows rapidly, and speedily becomes adherent to surrounding structures. It forms secondary deposits, and runs a rapid course. Albert Kocher has shown that the cells of this type of tumor contain a considerable amount of glycogen, and considers that they are derived from remnants of the parathyroids. (5) Post-branchial goiter has been described as a distinct variety of tumor, but it seems doubtful

whether it does constitute a definite type. It is said to form large irregular nodules sharply outlined from the rest of the gland, and of rapid growth. Its cells are large and have the appearance of liver cells, the tumor being said to be derived from the post-branchial bodies. (6) The malignant papilloma is usually small in size, and either solid or cystic. It is arborizing in structure and sometimes contains colloid. It behaves like ordinary carcinoma, metastasizing in the lymphatic glands, and is of considerable malignancy. (7) A curious type of tumor which occurs occasionally and is termed cancroid, is of doubtful thyroid origin. It is never very large, is extremely hard, and has an irregular surface. In section it is white and granular, and typically like the epitheliomata. It always occurs on the same spot, and early perforates the trachea in the neighborhood of the first tracheal ring. It would appear probable that this growth is derived from the epithelium of the pharynx or possibly from the thyroglossal tract. The treatment of malignant tumors of the thyroid is most unsatisfactory, the disease having usually invaded surrounding structures before it is diagnosed. The prophylaxis of malignant disease of the thyroid offers the most hope, and consists in operating on all goiters which resist medical treatment.

Bulletin of the Johns Hopkins Hospital.

November, 1921, xxxii, 369.

1. The Radiographic Evidence of the Influence of Cod-Liver Oil in Rickets. E. A. Park and John Howland.
2. Lipodystrophia Progressiva. With a Report of a Case. Henry Lee Smith.
3. An Experimental Study of Phagocytosis in Relation to Terminal Infections. Howard B. Cross.
4. The Chemical Dynamics of Muscle. F. Gowland Hopkins.

1. The Radiographic Evidence of the Influence of Cod-Liver Oil in Rickets.—E. A. Park and John Howland present a study based on 50 cases of rickets treated with cod-liver oil in which the results have been uniformly consistent. They feel justified in saying that cod-liver oil brings about a change in the bones which, if the diet be not too faulty, amounts to complete cure. The change is not noticeable at once, but is readily demonstrable in almost all cases at the end of a month. In two or three months so much infiltration with salts has taken place that the extremities of the bones, except for deformities, are practically normal, and only differences in the finer architecture of the ends of the bones indicate the previous existence of a rachitic process. They look upon cod-liver oil as a specific for rickets. They have not seen it fail in any single instance and have known it to cure rickets even though the children were dying of some other disease. They declare that they know of hardly another drug that in disease exerts so regular, certain and specific an effect as does cod-liver oil in rickets. The amounts of cod-liver oil administered varied from 2 to 4 c.c. three times a day. The article is illustrated by a number of interesting radiograms.

2. Lipodystrophia Progressiva. With Report of a Case.—Henry Lee Smith reviews the literature on this subject and reports a case of lipodystrophia progressiva in a woman 30 years of age, associated with arteriosclerosis, chronic nephritis, hypertension, and a moderate thyropathy as shown by the slight enlargement of the thyroid gland, the slight lid lag, the tremor, the slight nervousness, the increase in the pulse rate, the acrocyanosis, and the accelerated metabolic rate. The condition began to develop when the patient was 14 years of age. Lypodystrophia progressiva is a relatively rare condition, beginning insidiously and usually in early life; caused possibly by endocrine dysfunction; not hereditary; does not endanger life; and is more commonly and characteristically developed in the female. It is characterized pathologically by a slowly progressive, almost complete and probably permanent disappearance of the subcutaneous fat from the head, face, neck and upper extremities, and from the trunk as far as the pelvic bones and groin folds, and, especially in the female, by an increase in the subcutaneous fat of the buttocks, thighs and legs. Treatment has been unsuccessful. It has included the administration of thyroid, pituitary, and ovarian extracts, massage, hydrotherapy and overfeeding.

3. An Experimental Study of Phagocytosis in Relation to Terminal Infections.—Howard B. Cross was led to make this investigation because of the instances of energetic phagocytois frequently observed at autopsy. The surprising number of bacteria found within the leucocytes in individuals dying of fatal infection or intoxication suggests the possibility that the diminution of phagocytic activity sometimes associated with destructive infections may not be nearly as universal as commonly supposed. The data presented in this paper are selected from a study of 85 cases of infection which resulted in death and include a wide variety of both spontaneous and induced infections.

New Orleans Medical and Surgical Journal.

November, 1921, lxxiv, 5.

1. Tribute to Dr. Pierre Rouanet. Edmond Souchon.
2. A Clinico-Philosophic Interpretation of Immuno-Therapy. G. H. Sherman.
3. Diagnostic and Therapeutic Value of Lumbar Puncture in Lethargic Encephalitis. George H. Hauser.
4. Eczematoid Dermatitis Due to Ringworm Fungus. Ralph Hopkins.
5. Plea for More Careful Examination Leading to a More Accurate Diagnosis. J. E. Knighton.
6. Bronchiectasis. George S. Bel.
7. Municipal Refuse Collection and Disposal. H. R. Crohurst.
8. Situs Inversus Viscerum Totalis. Lester J. Williams.
9. Cancer Prophylaxis. J. C. Willis.
10. Some Fractures of the Base Treated by Repeated Spinal Punctures. L. B. Crawford.
11. Report of a Case of Tetany After the Third Partial Thyroidectomy. Hermann B. Gessner.

3. Diagnostic and Therapeutic Value of Lumbar Puncture in Lethargic Encephalitis.—George H. Hauser found the spinal fluid in his cases of encephalitic clear and usually under considerable pressure. There was no coagulum or film formed on the fluid standing. The cell counts were normal or showed but a moderate pleocytosis. In none of the cases studied did it exceed 11 per cubic millimeter. The prevailing cell was the lymphocyte. Globulin was not increased in any of the cases. All fluids gave a positive Fehling's test. The Wassermann was negative in all cases. The colloidal gold reaction was negative. This confirms the belief that the spinal fluid increase is the result of hypersecretion and not exudative in character, as meningitis always produces a curve in the meningitis zone. In the writer's cases it was noted that following spinal puncture and drainage of the canal, immediate beneficial results followed, irrespective of other therapeutic measures. The improvement in some cases was continued without further withdrawal of fluid. In two cases it was necessary to repeat the puncture and drainage to hasten recovery. It was noted, however, that the patients in whom it was necessary to puncture more than once did not relapse to their former mental state, but remained stationary, which condition necessitated further drainage. In some cases as much as 40 to 50 c.c of fluid was removed at one time.

10. Some Fractures of the Base Treated by Repeated Spinal Punctures.—L. B. Crawford advocates spinal tappings in the treatment of fractures of the base, though he does not claim that it is the ideal method of treatment in all cases. He contends that the treatment is well within the reach of all of us, and that if done repeatedly and enough fluid is withdrawn, the intracranial pressure will be relieved and much good will follow. It is really a spinal decompression and drainage, and where there is no blockage at the foramen magnum, the spinal pressure will be relieved and subsequently the intracranial pressure, too. He makes it a rule to do a spinal puncture in all head injuries, whether a fracture is suspected or not; it will do good in concussions, contusions, or basal fractures. In no one of his 10 cases did he puncture less than three times, and in three severe cases he punctured six times. All of his cases recovered. He believes William Sharpe has taken the proper stand in these cases, when he claims that the majority of basal fractures, in fact, two-thirds of all cases, do not have an increase of intracranial pressure of more than 12-14 mm., as registered by the spinal mercurial manometer, and as long as this is true, spinal punctures will suffice and that decompression operation is unnecessary. If the pressure is over 16 mm., a decompression should be done immediately.

Book Reviews.

SEX. FOR PARENTS AND TEACHERS. By WILLIAM LELAND STOWELL, M.D. Fellow of the New York Academy of Medicine and of the American Medical Association; Member of the New York State Medical Society; the New York County Medical Society; Society of Alumni of City Hospital; West End Medical Society; Formerly Instructor in Diseases of Children, New York University Medical College; Attending Physician to New York Congregational Home for the Aged; Formerly Consulting Physician to the New York City Children's Hospital and Schools; Author of Articles on Children in the New International Encyclopedia, Second Edition; Many Medical Papers; and the Doctor Outside of Medicine. Illustrated. Price $3.00. New York: The Macmillan Company, 1921.

THIS is a very clearly compiled work on the ever-interesting subject of sex. It nicely covers the ground and the type of people for which it has been written. It might seem to some of its readers to carry a little too much sentimentality in certain of its phases, while in other parts of the book it impresses one as needing more vitality and energy. It is not the perfect work on sex—that book has not yet been written—but it is an exceedingly honest presentation of our knowledge on the subject, scientific facts or collected experience. One cannot shake off the impression that the author must have viewed sex life through very mild, even tempered spectacles which certainly could not have seen the tempests surging through some types of hot blooded humanity.

THE HEALTH OF THE INDUSTRIAL WORKER. By EDGAR L. COLLIS, B.Ch., M.A., M.D. (Oxon.), M.R.C.P., (Lon.), M.R.C.S. (Eng.). Mansel Professor of Preventive Medicine, Welsh National School of Medicine; Member of Industrial Fatigue Research Board; Late H.M. Medical Inspector of Factories, and MAJOR GREENWOOD, M.R.C.P. (Lon.), M.R.C.S. (Eng.). Member of Industrial Fatigue Research Board; Reader in Medical Statistics, University of London; Late Statistician to Lister Institute; Head of Medical Research Branch, Ministry of Munitions; Containing a Chapter on RECLAMATION OF THE DISABLED by ARTHUR J. COLLIS, M.A., M.D. (Cantab.), M.R.C.S. (Eng.), D.P.H. (Durh.), Medical Superintendent, Ministry of Pensions Hospital, Leicester; Late Temp. Lieut.-Col. R.A.M.C. With an Introduction by SIR GEORGE NEWMAN, K.C.B., D.C.L., F.R.C.P. Price $7.00 net. Philadelphia: P. Blakiston's Son & Co., 1921.

SIR GEORGE NEWMAN, who contributed the introduction to this comprehensive study of the hygiene and health of the industrial worker in England, says in part that Professor Collis and Dr. Greenwood have given something of an interpretation and philosophy, something of a new foundation, of the science and art of preventive medicine as related to the industrial worker. "Our record is a remarkable one from the beginning of the industrial revolution to the present day. . . . Again the crucial matters—hours of labor and their distribution, the effect of personal welfare, the effect of the occupation itself, and nutrition—find a place in the front rank of the subjects dealt with in this book, and thus the approach is personal rather than by external sanitation, important though that is. Thirdly, there is brought into bold relief the place, socially and economically, of the employment of women; and lastly, this book almost breathes with the spirit of the solidarity of industrial society; the interdependence between employer and employee, the status, wages, equipment and surroundings of the worker in relation to his health and that of his fellow men."

Beginning with a history of industry from prehistoric times to the present; hygiene of the past and present, with the associated diseases of occupation; causation and prevention of accidents; industrial employment of women; labor turnover or industrial wastage; supervision of industrial health, and a chapter on reclamation of the disabled, this work most ably meets the present-day conditions and methods of their improvement in order to advance the health and happiness of the workers of the industrial world and at the same time to increase the amount of output of goods to be manufactured.

If one could persuade the average manufacturer to sit down at intervals and thoroughly read this book he would receive many surprises together with a considerable amount of encouragement to try to continue any lines of hygiene and preventive medical work he might have undertaken. It is not always the fault of the employer that more advanced conditions of hygiene are not given a trial. The industrial worker in these later years must be taught some of the sense of appreciation for the splendid methods which have been advanced for his health and comfort during the working hours. While there is much yet to be accomplished in this direction, the improvements can best be done when both sides show a spirit of co-operation and willingness, rather than an attempt on the part of the employer toward better conditions only to be met with the spirit of sullenness and the attitude that whatever is done for their benefit is theirs by right on the part of the employed. This work shows that it is the product of thorough understanding of the conditions with which it deals and deserves all the praise it will receive, for it is a splendid piece of co-operative writing.

THE DISEASES OF CHILDREN. By the late Sir JAMES FREDERIC GOODHART, Bart., M.D., LL.D., F.R.C.P. Eleventh Edition Edited by GEORGE FREDERIC STILL, M.A., M.D., F.R.C.P. Professor of Diseases of Children, King's College, London; Physician for Diseases of Children, King's College Hospital; Physician to the Hospital for Sick Children. Great Ormond Street. Price $10. New York: Paul B. Hoeber, 1921.

A BOOK that has passed through eleven editions in thirty-six years must be a worth while book. The author of the work died after the tenth edition had appeared, yet there is really no break between that and the present edition since Dr. Still had assisted in several of the previous revisions and thus knew the book almost as intimately as the author himself. The authors are well known to pediatrists as leaders in that branch of medicine in Great Britain, and American students and practitioners are to be congratulated in having this work made accessible to them, for next to studying abroad is the opportunity of reading the works of foreign teachers and of comparing their methods with those familiar to us at home. The book is well printed and illustrated, but is not so well bound, it being difficult, without breaking the back, to make the pages lie flat so as to be read without strain of the eyes.

BISMARCK, NIETZCHE, SCHEFFEL, MÖRIKE. Der Einfluss nervöser Zustände auf ihre Leben und Schaffen. Vier Krankheitsgeschichten, von Dr. med. A. MÜLLER. Bonn: A. Marcus & E. Weber, 1921.

THIS work hardly lends itself to a brief review, being on the order of the Biographic Clinics of Gould and other writers. The first two names are familiar enough to Americans, some of whom may be surprised to learn that Bismarck was an almost habitual physical and nervous wreck, continually going to pieces from overwork and for much of his life under the supervision of a medical attendant. They may also be surprised to learn that Nietzche enjoyed superb health much of the time although suffering much at other times. Both were men of enormous and tireless activity up to a certain point, when Nature seemed to give out. To refer any of Nietzche's morbidness of views to his physique or morale seems absurd. His final breakdown is attributed by some to paresis, but this does not seem to have been probable. Scheffel was a poet and dramatist whose neuropathic tendency was aggravated by overwork and excesses. He changed his occupation a number of times and tried various climates in his search for health. Mörike, like Scheffel, was constitutionally neurasthenic and made his way with great difficulty. He wrote many poems and short stories. The two last named subjects, who are little known in the United States, are evidently of very different neurasthenic type from that represented by the more prominent men, the endogenous factor being much more pronounced.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON SURGERY.

Stated Meeting, Held November 4, 1921.

DR. SEWARD ERDMAN IN THE CHAIR.

Subacromial Dislocation of the Shoulder—Open Operation and Reduction.—Dr. FREDERIC W. BANCROFT presented this patient, a man who gave a rather unusual history and had rather unusual findings. The history was that the patient dreamed he was wrestling and then fell out of bed. Upon awakening in the morning, he was uncertain whether his falling out of bed was a dream or a reality. He was unable, however. to abduct his arm and it was held in a position of marked internal rotation. He was then treated for three weeks in an orthopedic clinic under the diagnosis of circumflex nerve paralysis. When examined by Dr. Bancroft there was considerable atrophy of the arm. It was held in marked internal rotation, and it was impossible to abduct it without moving the scapula. The head of the humerus could be felt immediately posterior to the glenoid cavity lying directly beneath the acromial process. The anterior lip of the glenoid cavity could be felt. An anesthetic was administered, the dislocation reduced, and the arm put up in a Velpeau bandage. When the bandage was removed, ten days later, it was found that the head of the humerus had slipped out again, and an open operation was decided upon. In looking up the literature, very little could be found in regard to the technique of open reduction of the posterior dislocation of the humerus. Operation, however, was not difficult. The mode of approach was by incision posteriorly and cutting across the infraspinatus tendon. This gave a beautiful exposure of the joint capsule. The rent was easily seen, the capsule was sutured, and the wound closed. The arm was placed at right angles to the body but in extreme external rotation and kept in this position for four weeks, when active motion was started. The operation was performed five months ago. The patient now had perfect motion. The atrophy of the arm had disappeared since beginning muscular exercises.

Pedunculated Hemangioma of the Liver.—Dr. HAROLD E. SANTEE presented this patient, 35 years of age, who was admitted to Bellevue Hospital November 17, 1920, complaining of metrorrhagia and leucorrhea apparently from subinvolution and chronic endometritis. Her history was that for seven years past she had noticed a small mass in the abdomen which had never given her any pain. At times she felt it beneath the right costal margin, at other times near the umbilicus. She had felt it frequently herself without finding it tender. For the past two years, however, it had seemed to increase slightly in size until it was now the size of a baseball. It had been accompanied by no symptoms whatsoever. Physical examination was negative except for the surgical condition. The abdomen was relaxed and flat. On inspection there could be seen in the right upper quadrant lying between the umbilicus and the right costal margin a mass which elevated the anterior wall slightly beyond the corresponding left anterior wall. On palpatation there was easily felt a mass the size of a baseball, hard, very well circumscribed, not tender. This mass could be moved from the right costal margin across through the mid-epigastrium and downward to umbilicus so that the major portion of the mass could even be pushed to left of umbilicus and again across to right side practically to the anterior axillary line. It gave the impression of moving in an arch. Contraction of the recti fixed it in no way. No connection with any viscus could be made out. The liver edge was palpable just below costal margin. It was thought to be a mesenteric fibroma. Operation was performed on November 20, 1920. A tumor mass the size of a baseball was found free in the right upper quadrant except for a small thin flap attachment 1½ inches in breadth to the inferior margin of the liver extending from gall bladder fossa to the right. The right margin of this pedicle was practically entirely peritoneum; the left margin contained some liver tissue. No large vessels entering the tumor could be made out but the pedicle was fairly vascular with small vessels. The tumor mass itself was entirely covered with peritoneum. It was of elastic hardness as though containing fluid in its center. Underneath the peritoneal covering were two or three small areas which appeared rather cystic to feel. There was no attachment to viscus other than the liver. The round ligament lay well to left of tumor. The gall bladder was normal. Exploration of colon and pelvis showed no pathology other than moderate enlargement of the uterus. The operation consisted in a right rectus incision through anterior sheath retracting the rectus outward, then through posterior sheath and peritoneum. The pedicle of the tumor was clamped and the tumor amputated. The pedicle was whip-stitched over with plain gut No. 2 for hemostasis, and the wound closed. The report from the pathological laboratory showed the growth to be a pedunculated hemangioma of liver. The patient was discharged on December 3, 1920, the wound having healed perfectly and convalescence having proceeded without event.

Ochronosis, Associated with Ulcers of the Leg, Self-Treated by Carbolic Ointment for Over Twenty Years.—Dr. SANTEE presented this patient, a woman 56 years of age, admitted to Bellevue Hospital on February 29, 1921. She gave the following history: In 1892, following the birth of last child, she had swelling and edema of both legs, followed by an ulcer on the right leg. This was treated for four years with various ointments, but failed to heal as patient was active all the time. In 1896 an ulcer developed on the left leg. Due to failure of the ulcers to heal and their gradual increase in size she began treating them herself twenty years ago with carbolic ointment, first using the ointment only once a day, but liking its anesthetic effect on the ulcers gradually increased its use until on admission to the hospital she was redressing the ulcers practically every two hours and had been so doing for the past five or six years. Nineteen years ago, after using the carbolic ointment for a little over a year, she noticed the appearance on her forehead and over her cheek bones a bluish ink-like discoloration. In the course of the following five years this gradually appeared over the ears, knuckles of the hands, and about the elbows. The whites of her eyes showed blackish discolored areas. During the past six years the areas over the forehead and over the cheek bones had gradually lost their bluish color and had become brownish in color. Similarly small areas on neck, chest and forearms had assumed a brownish color. At no time had the patient suffered from any physical disability outside of that attached to the ulcers of the leg. Coincident, however, with the disappearance of the bluish pigmentation from the forehead and cheek bones, she noticed a marked increase in the pigmentation on her hands, both on dorsa and on the palms. The ulcers in spite of the use of carbolic ointment gradually increased in size, became very painful, and disabling. Examination showed the bluish black pigmentation involving the cartilages of the ear; slightly in the cartilages of the nose; markedly involving the skin over the dorsum of the hand, especially in the region of the knuckles, and well marked in the palms of the hands; also small areas over the elbows. The sclera of each eye showed a similar pigmentation, brownish black in color or either side of the cornea. There was a deep brownish pigmentation of the forehead, nose, and cheeks, in fact involving practically the entire face and extending down over the neck and chest. The forearms were similarly brownishly pigmented. The arrangement of this pigmentation was definitely symmetrical and seemed to lie in the deeper layers of the skin as well as in the cartilaginous portions where these were directly subcutaneous. A small segment of skin was removed from the dorsum of the hand for pathological examination, which showed a brownish pigmentation of many of the fibroids in the subepithelial tissues. The discoloration gave a smooth appearance to the fibroids. No granules were visible. The urine on repeated examinations was found to be negative for alkapton or carbolic acid, although the first specimen on admission showed a slight smokiness on standing for a short time. *X*-ray examination of the hands on March 10, 1921, showed atrophy of the bony structures of the

hand but no productive or destructive osteoarthritis. A similar condition of the knee joints showed on *x*-ray examination. The patient was kept in bed with red wash dressings for a few days, then Dakin's solution was used, and the ulcers improved markedly for a time and operation was recommended with the hope of getting a greater blood supply through the calloused base of the ulcers on which skin grafts could be placed. This procedure she was averse to, however, and left the hospital only improved. Her subsequent course since this time had been a return to the carbolic acid ointment with a marked deepening of the ink-like pigmentation on her hands and perhaps an increase in the size of the scleral pigmentation as well. In 1866, under the title of "Ochronosis," Virchow described a condition characterized by the deposition of brownish, blackish, or bluish-black iron pigment particularly in the cartilaginous structures of the body but also in tendons, joint capsules, periosteum, and certain internal organs, this pigmentation standing in close relation to melanin. Pathologically the costal cartilages, the intervertebral discs, the articular surfaces of large joints and the rings of the trachea were almost constantly pigmented. Occasionally the intima of the aorta and heart showed pigmentation. In the cartilages, the deposit of the pigment took place in the matrix, capsules and cells being spared or only slightly affected. In a considerable number of cases, ochronosis was attended by destructive lesions in the larger joints, sometimes giving rise to symptoms comparable to arthritis deformans. In about half of the cases, the urine was characterized by the presence of homogentisic acid or alkapton. This homogentisic acid being derived chemically from the incomplete breaking down of the protein in metabolism, particularly tyrosin and phenylalanin. Dr. Dakin, who had worked much in this subject, held that the homogentisic acid might be an abnormal product of metabolism rather than an intermediate product in normal metabolism. In about half the cases of this metabolic disturbance that had come under observation, a history of the long continued use of carbolic acid as a dressing had been noted. Whether this so influenced protein metabolism as to cause the formation of homogentisic acid in the tissues and its liberation through the urine, had not been determined. It was interesting to note, however, that normal cartilage immersed in a dilute solution of homogentisic acid would take on the same blackish or brownish black pigmentation that was shown in this type of case. No patient had been known to die as a result of this metabolic disturbance and it seemed not incompatible with a long life.

Dr. HAROLD NEUHOF stated that Dr. Pick of Berlin had been very active in the study of ochronosis. When he visited Pick's museum he saw among his osteological specimens about a dozen showing this condition. The same type of discoloration exists in the bones as in the skin and particularly in the epiphysis and at the epiphyseal line. There was also a specimen showing pigmentation deposited in the large bowel. In some patients who showed but little discoloration of the skin one might have the diagnosis established by proctoscopic examination.

Dr. ERDMAN asked how early in the course of the development of symptoms the wrist drop was noticed. As he recalled, Dr. Aschner had mentioned the wrist drop as an early symptom observed before the diagnosis of thrombosis was made. In that case he wondered if it might not be related to pressure while the patient was on the operating table. It was possible that the intima of the artery might have been injured at that time, thus predisposing to thrombosis at this level.

Embolism of Brachial Artery Complicating Acute Appendicitis.—Dr. PAUL W. ASCHNER presented this patient, a chauffeur, 34 years of age, who was admitted to the surgical service of Dr. Beer at the Mt. Sinai Hospital on February 14, 1920. Two days before admission he was seized with general abdominal pain accompanied by vomiting, fever, and chills. The pain then localized in the right lower quadrant. The man had had bronchitis nine years ago, influenza two weeks ago, and for the past two years a morning cough with production of a small amount of greenish mucus. On physical examination the findings indicated acute appendicitis with abscess. Because of the history of respiratory trouble Dr. Aschner began the operation under local anesthesia, later supplemented by light chloroform anesthesia. Through a three inch rectus incision a large pelvic abscess was evacuated. The appendix was found adherent in the pelvis, completely gangrenous, with perforation abscess of the mesenteriolum. The appendix and most of the diseased mesenteriolum were removed in the usual fashion. A tube drain was placed in the pelvis and the wound closed in layers. The patient progressed in ordinary postoperative manner until the third day, when he complained of sudden pain in the right arm and hand and increasing numbness of the fingers with inability to move them freely. On examination the hand appeared mottled and dusky in color, felt cold, and was definitely hyperalgesic. No pulse could be felt in the radial artery nor in the brachial at the elbow. A pulse could be felt, however, at the junction of the lower and middle thirds of the upper arm. A diagnosis of embolism of the brachial artery was made. Two hours later the point of pulsation had receded to the junction of the middle and upper thirds of the brachial artery and operative intervention was decided upon. Under local anesthesia Dr. Buerger exposed the brachial artery in its upper third through a four inch incision. The surrounding nerves were carefully separated, the vessel isolated and controlled by a traction tape. A half inch incision was made into the vessel just above the point of closure and a thrombus was milked up from below. Retrograde bleeding occurred. The vessel wound was sutured with silk, and pulsation being detected at the elbow the wound was closed without drainage. The thrombus was about 1.5 cm. in length, sterile, and showed beginning organization. The color of the hand improved immediately but it still felt cold, and the radial pulse was not restored. The whole arm was kept warm by an electric light apparatus. Paresthesias and pain continued, requiring the use of narcotics. The color continued to improve, but the thumb became blue, then black, and developed a beginning line of demarcation at the interphalangeal joint. The abdominal wound suppurated freely and there was some facial necrosis. Six days after the thrombectomy a tendency to wrist drop was noticed, and the neurological examination showed definite sensory and motor changes referable to the ulnar and musculospiral nerves. Although the brachial wound appeared to have healed *per primam*, there was some deep induration requiring wet dressings. On March 8, about two weeks after the thrombectomy, there was a chill and sudden rise of temperature to 105.4°, but the blood culture was negative and the fever disappeared in twenty-four hours. On March 12, a second chill and rise of temperature to 106° occurred and the blood culture showed hemolytic streptococci. On March 16, a considerable collection of pus beneath the healed brachial wound was found and evacuated. Two days later an abscess of the right tehnar space was found and evacuated. On April 7, demarcation of the gangrene of the thumb had become well defined and the terminal phalanx was disarticulated. The head of the second phalanx was rongeured away and the wound left open. In a few days the patient was discharged for further care in the dispensary. A month later he again come under observation. He was suffering intensely. His nights were sleepless. The hand and forearm were atrophic and rigid, the color was a dusky red, the fingers were purplish. There was hyperhidrosis. Neurological examination showed that while the musculospiral involvement had cleared up considerably there was marked impairment of the motor and sensory functions of the median and ulnar nerves. The amputation wound was not healed completely, the stump being tender and painful. *X*-ray examination showed two small sequestra. Wet dressings were applied and the bone fragments were extruded in the course of a month. Treatment of the neuritis was undertaken by Dr. B. Sachs who employed daily electrical stimulation. For the vascular phenomena the writer ordered postural exercises, the whole arm being extended above the head for a minute, then dependent for a minute, and then in semiflexion for three minutes. This was done three times a day for twenty minutes if possible. The results of this treatment was remarkable. In three months practically normal range of motion was estab-

lished. At the same time the atrophy of the muscles was overcome and the color and texture of the skin and nails approached normal. The vascular symptoms gradually disappeared and sedatives were no longer necessary. On September 7, seven months after the vascular occlusion, there was a fair radial pulse in the radial artery, which had persisted ever since. A month later the patient was able to resume his work as chauffeur and was now entirely well. Dr. Aschner said the case presented several interesting points. The source of the embolism and its course were puzzling. Various theories to account for these were discussed and the opinion expressed that the theory of paradoxic embolism was the most probable. The marked neural involvement was explained by the suppuration which developed in the brachial wound producing neuritis and perineuritis. Its effects were disastrous and rendered the limb useless. The remarkable result obtained by Dr. Sachs in its treatment was one of the most instructive elements in the case. The reappearance of the radial pulse after its absence for several months required explanation. Such a phenomenon could be due to one or two processes, either canalization of the occluded vessels, or the re-establishment of adequate collateral circulation by way of the superior profunda artery. The fact that pulsation could be felt in the radial artery for a distance of 6 cm. only, and that no pulsation could be detected along the course of the brachial artery below its upper third seemed to indicate that collateral circulation had been the method of recovery.

Experimental Reconstruction of the Esophagus by Granulation Tubes. (With Lantern Slides.)—Drs. HAROLD NEUHOF and JEROME ZIEGLER made this presentation from the Department of Surgery, College of Physicians and Surgeons, Columbia University. They stated that varied attempts by widely different operative procedures had been made to solve the problem of reconstruction of the esophagus after removal of segments of the organ. Briefly, it might be said that the earliest plan was the formation of a skin tube fashioned from the skin of the anterior chest wall, to which the esophagus above the stricture was attached superiorly, and the stomach below. Later developments consisted in the implants of loops of small or large intestine isolated in various ways and, finally, tubes or flaps from the gastric wall were employed for this purpose. Experimentally these methods had been followed by occasional successes and there were a few instances in which, clinically, too, they had proven satisfactory. In the human being such a procedure involved multiple operations over a period of many weeks or months with the ever present likelihood of failure from complications, as infection or gangrene of the isolated portion of the hollow viscus, etc. The technique was complicated and the patient must necessarily be in good physical condition to withstand the several major operations. If progress was to be made in this field it was essential to sharply differentiate the problem of esophagoplasty into two parts—a plan of operation adaptable for benign stenosis and one for cancer of the esophagus. In the former a considerable length of the organ might be involved or the strictures might be multiple; the patient was apt to be young and in good physical condition, and the problem was one of sidetracking and not of removing the disease. In cancer of the esophagus the patient was usually old and debilitated by the disease; and the problem was one of replacement of relatively short segments of the organ. It was the latter problem that had engaged their attention in the experimental studies. After referring to the methods employed in the two successful cases of reconstruction of the esophagus for cancer recorded by Dr. Lilienthal and Dr. Torek, Dr. Neuhof pointed out the fact that repair of a wound of the esophagus took place by granulation tissue. The impression that anastomosis between the esophagus and some other hollow viscus would be followed by repair as seen in the peritoneal cavity was incorrect. The esophagus had no serosal covering and the repair after operations upon the abdominal hollow organs depended primarily upon the existence of the serosal layer. Since repair of the esophagus took place by granulation, they had determined to make use of this fact by establishing granulation tubes between the esophagus stumps after resection of the organ. The experiments comprised a series of operations performed on thirteen dogs all under ether anesthesia. After trying various procedures they adopted the following operation carried out in two stages which they regard as the correct procedure. Fatal infection followed attempts to perform a one stage operation. A vertical incision was made to the left of the trachea and the esophagus was exposed by traction of the muscularure and great vessels. The vagi were stripped free, the branches going into the segment being sacrificed. The desired portion of the esophagus being thoroughly isolated, gauze packings were placed beneath it, the ends coming out of the wound. The latter was left wide open. At the second stage, one week later, the isolated portion of the esophagus was elevated by traction on the packings and was divided obliquely above and below. The packings and the segment of esophagus were then removed. A bed of granulation tissue was found to have been formed beneath the packings. A soft rubber tube of the diameter of the esophagus was securely sutured to the upper and lower ends of the organ by stitches passed transversely. The rubber tube had a lateral opening in order to feed the animal by a catheter passed through it into the stomach. When the tube became loose it was removed or had already been swallowed or discharged from the wound. By this time the external wound was largely closed by granulation tissue. An esophageal fistula, or rather a fistula through the new-formed granulation tube, persisted to finally close completely. Three experiments were described illustrating the process of gradual reconstruction of the esophagus by the granulation tube operation which indicated the results that had been obtained. A dog kept for seven months after esophageal reconstruction by granulation tube was in satisfactory physical condition during that period. After an early period of disturbed deglutition accompanied by repeated regurgitation of food this animal was able to swallow fluids and mush, but no large fragments of food. A stenosis of the esophagus at the site of the granulation tube was noted and it was apparent that this could have been dilated by bougies. However, this was not practiced because they wished to learn whether the stenosis would be progressive, and thus vitiate the operative procedure. The stenosis remained stationary and was found at autopsy to have resulted in the reduction of the normal circumference about one-fourth. Furthermore, the autopsy showed that the esophageal ends had been drawn together, reducing the original defect of 5 cm. about one-half. The lining by overgrowing epithelium was complete and the new formed esophageal tube was of the same thickness and of greater resistance than the adjacent esophageal wall. So far as the actual reconstruction of the esophagus by a granulation tube was concerned, they believed the difficulty would not be as great in the human being as in the animal experiments. The technique applied to the human being they believed should be through the posterior mediastinum by the extrapleural approach as described by Dr. Lilienthal. A string was attached to the tube, brought out through the mouth and anchored to the cheek so that the tube could be recovered when it became loose. The technique of rubber tube implantation which they described would appear to be applicable only to esophageal resection below the level of the arch of the aorta, and would probably have to be modified for tumors opposite or directly above the arch. From their studies they believed it justifiable to advocate the reconstruction of short esophageal defects such as those encountered in resection for cancer, by the granulation tube method they had devised.

Dr. WILLY MEYER said he was sure that everybody who had heard Dr. Neuhof describe these experiments on dogs would agree that they were not only interesting but likely of great importance. Some thoracoplasties, both extrathoracic and intrathoracic, had been done, and in some instances the lower end of the esophagus had been omitted and a gastrotomy done with the greater curvature of the stomach. In Dr. Torek's case the lower part of the esophagus was removed and the proximal end placed subcutaneously and connected with the gastrostomy by a tube. Dr. Torek's cases survived and took nourishment through this tube. Many

had attempted similar operations, but the patients had survived, at best, only a few days. Others had tried various intrathoracic procedures in animals. He had carried out some animal experiments. By means of laparotomy he formed the new lower portion of the esophagus from a portion of the major curvature of the stomach; then he did a transpleural thoracotomy, divided the esophagus, inverted the distal end, brought the newly formed lower part of the esophagus alongside the cardia through a slit in the diaphragm up into the posterior mediastinum, and united it with the normal proximal esophagus, which remained *in situ* undisturbed by end to end suture. Although certain of these one stage procedures might be successful in dogs in good condition, they were not suitable for patients with cancer; in such patients the operative procedure should be a two stage one. The work done by Dr. Neuhof and Dr. Ziegler marked a distinct advance in thoracic surgery. He believed their method would be of practical value even if a stricture was formed, because a stricture could be stretched by bougies. It seemed that by this method it would be possible to remove a growth and reconstruct the esophagus in such a way that its function would be preserved. Dr. Meyer said he could not refrain from speaking a word in reference to the *x*-ray and radium in this connection. With radium and the *x*-ray in tremendous voltage a number of observers had seen cures of epitheliomas of the skin and the question might be asked, if these agencies were efficacious in curing epithelioma of the skin, why they should not be used in treating epithelioma of the mucosa of the esophagus. He felt that if they could remove cancer of the esophagus by good surgery and could reconstruct the resected portion of the esophagus by a granulation tube, he would be in favor of the knife rather than of radium and the *x*-ray.

Fracture of the Femur: Analysis of Fifty Cases.—Dr. JOHN J. MOORHEAD presented this report on the surgical end results of forty cases treated by him at the Harlem Hospital and ten cases treated at the Post-Graduate Hospital during a period of nine months. An attempt was made to standardize the treatment based on such determining elements as general physique, site of fracture, and facilities for treatment. Statistics were charted giving the manner of accident, age, sex, method of treatment, period abed, and the condition on leaving the hospital. Before consideration could be given to methods of treatment, it was important to classify or "type" the fracture, irrespective of the level of the lesion, the physique of the patient, or the manner of receipt of the injury. This "typing" of fractures was the basis for all attempts at standardizing treatment, and closely allied to this fundamental consideration was the method of determining end results. In an attempt to classify the original condition, he had divided all fractures into two main groups, either of which might be simple or compound. Type I was the displaced malaligned or separated group in which the fragments were not end to end but were overlapped in their vertical or lateral axes. This formed the group called "typical." Type II was the non-displaced, the aligned, the non-separated group in which the fragments were end to end and not overlapped. These formed the group named "atypical." In fractures in which there was no such typing what might seem a "severe fracture" to one observer might be a "moderately severe fracture" to another equally good observer. End results offered some confusion as to definition. For the purpose of mathematical calculation, end results in fractures could be grouped under the three terms function, union, and contour. Function was allotted 60 per cent., union 20 per cent. and contour 20 per cent., thus realizing that function was three times more valuable than the other elements. After analyzing this series of cases and describing the various methods of treatment employed, Dr. Moorhead concluded as follows: (1) In fifty consecutive unselected cases there had been one death within twenty-four hours from associated fractured skull. (2) Twenty-eight of the cases were over and 22 were under 16 years of age. The average age of the adults was 51.2 years; the average age of the children was 6.7 years. The average age of the patients with facture of the femoral neck was 60.3 years; the youngest patient in this "neck" group was 49 and the oldest 75. (3) There were 35 males and 15 females. In the neck group approximately twice as many women as men were represented, namely 9 females to 4 males. Excluding the neck group, five times more males are represented than females; hence fracture of the neck of the femur was distinctly more common in women; but in the other anatomical zones fracture of the femur was definitely a lesion far more prevalent among males. Strangely enough, only 2 females were represented in a group of 22 children. (4) Excluding 14 cases in the neck zone there were 63 fractures in other zones; of these 16, or 44.4 per cent., were treated by the transfixion method and of these the nail remained *in situ* 29.6 days on an average. This indicated that by the transfixion method union becomes firm enough at the end of a little over four weeks to apply walking calipers or some other more or less ambulatory form of splintage. This confirmed his previously expressed opinion that the transfixion method hastened union very appreciably for by other forms of treatment in which skeletal traction was not employed union was rarely firm until the end of twelve or more weeks. Doubtless the increased self-massage, circulatory activity, freedom from atrophy, lack of edema, slight motion between the fragments and joint activity—all these incidental to skeletal traction—contributed to this early osseous repair. Approximately one half these cases were fracture of the middle third; approximately one-fourth were in the neck zone. Approximately one-eighth were in each of the other zones. In other words, approximately 88 per cent. of cases involved the upper half of this bone. Of these cases 22 had definite notes as to the extent of shortening at the time of removal of apparatus or at discharge; 19 of these had a shortening varying from ¾ of an inch to zero. Seventeen cases were recorded as having good results, and three had a poor result, meaning thereby that the limb would not support weight unaided. This series of typical cases would indicate that the treatment of fracture of the femur resolved itself into the following: (a) Children up to five years of age to be treated by overhead suspension. (b) Fractures of the neck zone to be treated by the abduction plaster of Paris cast, physique permitting. (c) Fractures in all other zones to be treated by one of the three forms of skeletal traction, of which the transfixion method was the choice.

Dr. EDWARD WALLACE LEE said this paper was most excellent and merited the consideration of everybody who was liable to be called upon to treat fractures or liable to be called into court, as so often happened, in connection with the results in fracture cases. There was good evidence that the treatment of fractures was not strictly in scientific hands, as one could see from the figures as to the results. Dr. Lee said he wished to emphasize one point in connection with the treatment of fractures and that was that fractures were treated too much, especially fractures of the femur. Surgeons were advising frequent *x*-ray examinations. For instance, he had seen from a country paper that Mrs. Smith of a country town had fallen and broken her leg. She was put in an automobile and taken a distance of twenty or thirty miles to be *x*-rayed, and was then brought back. A doctor had very little sense if he could not determine whether a leg was fractured or not without an *x*-ray examination. There were two or three things that everyone should recognize in the treatment of fractures. First, getting the fragments into position; second, keeping them in position, and third, using traction, especially if the fracture was one of the femur. Firm traction was the *sine qua non* for holding a fracture firmly in position. As to the traction apparatus, Dr. Lee said he knew of nothing better than Buck's extension. For many years excellent results were obtained with Buck's extension; to-day it was used very little, though one could look back and recall many fractures of the femur in which good results were obtained by the so-called ordinary splints, extension and sandbags, but there was not so much moving and carting the patient about. He felt that a great deal of harm came from moving the patient in order to make these *x*-ray examinations. Very often this moving brought about displacements which were

difficult to overcome. Dr. Lee complimented the paper very highly, but insisted that more care was needed in the treatment of fractures.

Dr. SETH M. MILLIKEN said he had enjoyed the paper very much and would like to bring out one or two points. One was that children older than five years could be treated by overhead traction. Overhead frame could be used on children until they were too big, to be held between the bars or pulley high enough to have the pelvis clear from the bed. Nail traction was, to his mind, the most satisfactory method, the nail being surer to put in and easier to take out, and the nail never slipped. He thought the matter of promptness of making attempts at reduction had not been sufficiently emphasized, and advised that in all cases except fracture of the neck, an immediate attempt at reduction should be made by the attending or by the house surgeon in the absence of the attending, and if apparently successful the mobilization put on to be controlled by the subsequent *x*-ray unless one was immediately available. He presented an *x*-ray that had been made the following day of a case about which the house surgeon had phoned that no reduction could be done without an anaesthetic and that the patient was too large to go in the overhead suspension. Acting on orders the house surgeon had applied traction and immediate application of a plaster Paris cast from the toes to the hip, thinking that the reduction had been accomplished. *X*-ray showed an end to end apposition of the bones with very slight deformity. Dr. Milliken said that the *x*-ray was an absolute necessity for knowledge as to the control of the reduction and must be made in all cases, of course the *x*-ray apparatus was to be taken to the patient, and not the patient to the *x*-ray apparatus when that would be dangerous.

Dr. WILLY MEYER agreed with Dr. Lee and Dr. Milliken that Dr. Moorhead's paper was a very excellent one. There were two points, however, of which he wished to speak, namely, the treatment of fracture of the femur in children and in very old people. Overhead traction in children was the correct treatment so long as it lifted the pelvis, that was until the child was six or seven years of age. If one put between the foot and the pulleys two large rubber tubes it gave a certain elasticity which the children liked and which permitted them to raise the body parallel with the limb and hip. In middle-aged people the Steinmann nail was no doubt the treatment of choice. However, in very old people he did not venture the Steinmann nail, but used Buck's extension with abduction, and started massage as soon as possible. He had the nurse give deep massage every four hours day after day. He had employed this method of treatment during the past summer in two women with fracture of the neck of the femur, one 74 and the other 88 years of age, and both made a good recovery. In elderly people, however, the Steinmann pin was best.

Dr. HOWARD LILIENTHAL also placed his approval on the Steinmann nail. He said it held the bone firmly and was very much less apt to do harm than any form of calipers. Regarding the cases treated many years ago, he had not seen as good results then as one saw at the present time, and he did not believe they had as good results as were obtained to-day. As to the people who lived in the back woods, light, portable *x*-ray apparatus was now being made and should find its way into the back woods. He did not think it was decent surgery to transport a fracture case over the roads just to find out whether there was a broken bone, and he did not believe there were many country doctors who would do such a thing. He did believe, however, that the Steinmann pin could be used outside the hospital and he believed that in fractures of the shaft of the femur it was the most valuable adjunct we had. If the patient was energetic, fractures of the neck of the femur, even in old people, might be successfully treated with an ambulant splint. He believed that treating these patients by putting them on an ambulant splint with crutches often saved their lives and in many cases saved a good limb also. The late Dr. H. L. Stimson used to be in favor of Buck's extension and he held that with Buck's extension there was a tilting of the pelvis so that it was not necessary to have the leg thrown out. Dr. Lilienthal used Buck's extension while waiting for the ambulant splints.

Dr. JOHN F. CONNORS stated that for the past two years they had been treating fractures by skeletal traction. A Steinmann nail was first used on their service by Dr. Moorhead. They have become convinced that skeletal traction, however obtained, has proved itself to be the most successful device for the treatment of fractures. During the last year they had been experimenting with tongs and nail in treating fractures of the femur, and they considered that the best traction was obtained in the use of the nail. With this treatment the danger of ankylosis was almost completely obviated. The part was always open for inspection and massage, which did a great deal for early union and function. He thought that all fractures should be set as early as possible without waiting for *x*-ray, for in many instances much time was lost in waiting for the reports of the *x*-ray examination. They should be *x*-rayed after reduction, when one could see the result of his efforts. As to the treatment of fracture of the neck of the femur in elderly people, he advised an ambulatory splint and the patient allowed out of bed on crutches. By frequent *x*-ray examination one was able to observe the results, whether satisfactory or otherwise, in sufficient time to make any corrections necessary. He was of the opinion that the treatment of fractures should be by mobilization rather than by immobilization.

Dr. SEWARD ERDMAN mentioned that he had recently been at the Hospital for the Ruptured and Crippled, and Dr. Whitman had spoken of the fact that his method was sometimes condemned, when as a matter of fact most men in attempting to employ his method did not actually carry out his procedure. We often thought we were using the Whitman method but we did not get enough abduction. There were no dangers in the method according to Dr. Whitman. He showed him an old lady in plaster down to her toes yet she did not get hypostatic pneumonia. The head of the bed was raised and every two hours the nurse rolled the patient over on her face, using the plaster cast of the abducted leg as a handle. In this way the circulation of the lungs was not interfered with and the danger of hypostatic pneumonia was largely minimized.

Dr. MOORHEAD, in closing the discussion, said that in regard to Buck's extension he was sorry that in his hurry to read as much of his paper as possible in the short time allotted he did not emphasize a fact that he wanted to bring out, that was that in Type II cases without much displacement Buck's extension, or a plaster cast or a side splint would produce satisfactory results. The modern Buck's extension was the so-called military overhead frame, and except in compound and military fractures in which debridement was necessary and the muscles were paretic, they had never obtained satisfactory results with it. In the Type I fractures of the femur in order to overcome overlapping there was need of skeletal traction, and at the present time there were only three methods meriting consideration, namely, the transfixion nail, the tongs or callipers and the band or stirrup.

Adrenalin in Incoercible Vomiting of Pregnancy.—Rathery and Bordet appear to have made a striking discovery in regard to the action of adrenalin in the morbidity of pregnancy. The drug was administered by the mouth, by hypodermic injection, and by enema, always with the same result. The technique was somewhat complicated, the dose on the first day being 1 mg. hypodermically; on the second day 1 mg. each by mouth and by hypodermic injection, and on succeeding days the same until 8.5 mg. had been given in six days. Vomiting ceased at once, but lest this be attributed to suggestion the authors note that the organ becomes remarkably tolerant, so that anything in the way of food and drugs is readily retained. The tension of the blood is not increased until about the seventh day. Apparently there is a shortage of adrenalin in these subjects, and not until this is made up does the usual physiological action appear. The reader may be reminded that the pigmentations of pregnancy which so commonly appear also point to shortage of suprarenal substance.—*La Presse Médicale.*

Medical History.

NEW BOOKS AND OLD.

XXIII. WALTER MOXON AND HIS PILOCEREUS SENILIS.

By JOHN RUHRÄH, M.D.,

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SOMETIMES one tires of the great things of the world and longs to turn aside for a little while to quieter, lesser subjects. So in medical bibliography I find it refreshing to turn away from the great names like Paré, Vesalius, Harvey, Servetus, and such giants of the intellect to little known names like, for example, Walter Moxon. But few of my readers know him or I miss my guess.

He did little in the way of advancing our knowledge of medicine, a number of papers contributed to Guy's Hospital Reports such as those on atheroma of the arteries, a contribution to the history of visceral syphilis, insular sclerosis of the brain and spinal cord, and the pathological nature of tumors and similar contributions, all very well in their way but not epoch making. His contributions were those of the average investigator and clinician.

He was born June 27, 1836, in the county Cork where birth control was not in fashion as he was one of nine children. His father was distantly connected with Edward Jenner of vaccination fame. His early education was not extensive and he was soon placed in a merchant's office in London, to which city his father had removed. The routine of business did not appeal to him and to get out of it he applied himself with industry and through his unaided efforts was able to pass the matriculation examination of the University, after which he entered Guy's Hospital in 1854, and with this institution he was associated the remainder of his life. In 1859 he got his M. B from the University of London. He was a brilliant, prize-winning student and in 1857 he was already an assistant demonstrator of anatomy. He used to urge his students to learn anatomy as he said he knew it, that is, as a cabman knows his way about London. After five years in anatomy he turned his attention to pathology. He was a gifted draughtsman and illustrated his work on "Pathological Anatomy," and left a large number of wonderful drawings of pathological lessons both microscopic and macroscopic. He contributed considerably to Wilk's "Lectures," the second edition of which he edited and greatly improved. He wrote numerous articles for the Transactions of the Pathological Society and published a series of "Lectures on Analytical Pathology."

From the pathological department he passed to the medical and became Lecturer on Materia Medica and Therapeutics. He was a brilliant lecturer and his hall was crowded with others than the students who came for mere instruction. Complimented on the large size of his class he replied: "I don't suppose I give the men better bread and meat but I put a little mustard on the sandwich."

He was characterized as hospitable, loving to gather about his board men of wit and wisdom. A "man of work-by-banter, of sparkling humor, wit, even to a stranger, by his slight oddities of manner and gesture, brimful of individualized nervous energy."

As a clinical teacher he was a distinct success, brilliant, suggestive, witty, but above all imbued with the idea that nothing could replace clinical observation, a part of medicine suffering somewhat in our day from our reliance on the laboratory and the Roentgen ray. Moxon once said: "The only use of books is to instruct you in the meaning of a name, your own eyes and ears and touch must teach you the nature of things."

His health towards the latter part of his life was not good, hemoptysis and hematuria, together with headaches and sleeplessness, led him to resort to chloral and he died from an overdose on July 21, 1886.

Perhaps I cannot end this part of my sketch any better than to copy the anonymous writer in the *Lancet* for August 7, 1886, which contained an obituary notice:

> That he was a physician of the highest type, well versed in literature, acute in observation, exact in diagnosis, and rational in treatment, all will be ready to admit; but when all the qualities that are essential to a great physician have been enumerated, and it is allowed that he possessed them in the highest degree, the picture fails to show in what his power lay; for Moxon's was a many sided intellect, and this induced men of every profession to think him best suited for the one to which they themselves belonged. Barristers envied his rapidity of thought, fertility in argument, and fluency of speech; men of science were struck by his perseverance, his industry, and his immense power of grasping details; dignitaries of the church, if sometimes slightly alarmed by the breadth of his views, recognized that his fervor and gift of persuasion might exert influence from the pulpit, and would have had him ordained. Yet no one could say that Moxon was lost in the medical profession; perhaps no other would have allowed such free play for so fresh and vigorous a mind. . . .
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> Of late, under the pressure of friends and editors, he had, at intervals, contributed to the Contemporary Review, and perhaps we cannot end this sketch of his life better than by quoting the final words of his last published essay: "True, the vital spark of heavenly flame does somehow hold one together. Yet faith is not for the body, nor is hope more earthly expectation, nor is life all centripetal, nor is the future merely a coming present; and those who vulgarize our holy things do harm to all that is noble in humanity, whose faith must endure all things, with 'nevertheless not my will, but Thine,' trusting ever in One whose ways are not our ways, who sees good in everything we call evil, so as to permit it, and evil in everything we call good, so as to send it quietly away, and believing that the good God is always good to all, and strives to be good through all to all, and never fails, but only seems to men to fail."

Moxon's contributions, apart from his scientific papers, arew orth an evening's perusal. They were collected and published in 1887, after his death, under the title of Pilocereus Senilis, a pseudonym which he used to sign his contributions to Guy's Hospital Gazette. This I suppose may be translated into English as "The old white (waxy) poll," or "The old gray head." These "Notes and Reflections of Pilocercus Senilis" as they were called, appeared from 1873 to 1876. "I can't judge for young people now, but if you think these little pieces fit for a dull corner that by some strange chance might be found in your clever *Gazette*, these and more are quite at your service." So he wrote to the Editor.

He gave good sound advice; he rambled a bit here

and there with delightful comment. At the outset writing as it were to the medical student, he says:

Here's a melancholy truth! However you work your few ounces of brains, you will get out of them what Thomson and Johnson got with the few pounds their father left them. One pays in gold, another in brains. And the world will sum you up, not by the mite of store your exhaustion was able to give, but by the scrap it was when cast into the world's treasury. They will take you as they find you, and care nothing at all how you got to be what you are.

In one of the letters called "Truth and Negativism" he writes:

A golden thread has run throughout the history of the world, consecutive and continuous, the work of the best men in successive ages. From point to point it still runs, and when near you feel it as the clear and bright and searchingly irresistible light which *Truth* throws forth when great minds conceive it. Truth not of 'Fact' merely, but Truth that includes the world that your senses are too coarse for. . . . There is a power of living Truth where facts are dead—truth that cannot see whether the false is false, because the false never stands in his sight. He know not the false; it burns away before him and is gone. But I forgot, some people don't distinguish between *things* and *truths*. *Perhaps you don't see that the constructive faculty of man has to make human truths out of brute things.* You don't think so! Ah! I see you don't apprehend truths that aren't things. You think there is no devil, do you? But look, there is no part of your life so really real as that in which the devil is a reality. These things we touch with our fingers are phantoms beside the devil's reality. They come and go, and you can pass away from and leave them. But the devil (*"Der Geist der stets verneint,"* the spirit which loves denial) you have always near you. Learn to fight him, and you will see how real he is, and what strength there is in victory over him.

In "Liberty and Waste" he refers to a good old English Bishop that we should like to have with us in this country today—that is some of us would.

Something in every Englishman's heart admires the good bishop who would "rather see his country free than sober." (Whether it is sobriety or freedom that moves this admiration we won't stay to inquire.) But in our worship of Liberty let us take into account the sacrifice a complete Liberty compels us to make. Let us look at the negative side of Liberty—what it takes away. Suppose all the youths grow up in personal freedom and self-dependence, and have no reliance apart from their own private judgment. What, then, do they lose? You will see that they lose the fruits of the greater part of their nature. How? Don't you see? Think, then, how much of each of us lies waste and unused because his individual motives don't furnish "go" enough to employ the powers he has. To use this waste (the larger part of most of us, by the way) it needs that one's individuality should come under some influence that shall carry it off from its self-centered Liberty), and occupy it in an honorable unreserved spirit in work, under what is greater and better than self; what I mean is, that as "free" individuals we have not power enough over ourself. I don't mean power to repress ourself—we can acquire that—but power to use ourself actively; a very different thing. How much of any man's wretched restlessness could be traced to the half-conscious striving of faculties he can't use. To use them he must go under some mind moved by greater purpose. A great enough purposer can use any man's waste powers—powers that are out of the man's own reach. But if he will remain in self-centered "Liberty" then that better social part of his nature which his self cannot move is lost to himself and to others. The best interpretation of human restlessness is the instinctive desire to be used for some strong purpose, some meaning greater than a man's own individual tendency.

From "The Thoughts of the Heart," the following are striking:

Perhaps that is as well; spying into the brain with the highest object-glasses is something like using extra big spectacles to examine the closed edges of a book you are to read, but cannot open. . . . The fact is, the brain is a sort of Æolian instrument of many strings whereupon the several organs play ("organs play" sounds as topsy-turvy as Polonius at supper where he was being eaten, but I cannot help it). There are no thoughts in the brain without the whirl of the blood through it, any more than there is music in an Æolian harp when the air is still; and the brain in its vast complex receives influences which stir it to action in various regions and manners according to the appetites and passions connected with the several functionary parts of the body, as many winds move upon the vast expanse of the sea. So that David was right when he said "the thoughts of his heart;" but the heart is not the only agent for eliciting thoughts from the brain; for while we say, "Out of the fulness of the heart," in reference to some, yet in other cases you feel sure you would be right in saying, "Out of the fulness of the stomach the mouth speaketh," or else out of an overfull muscular development of some other parts of the body. . . .

Now, practically, you see what a responsibility there is in having any organ over-active, hypertrophying beyond its just proportions, and hence playing too vigorous a tune on the nervous stringed instrument in your cranium, and how one must watch the energies of a dominant organ and withdraw from circumstances that rouse its too great activity. But it is not only in regard of individual organs that this is true; the danger of getting only thoughts of one sort, or too much of one sort, extends to a much higher sphere of activity. For instance, if you spend all your time in experimental processes of scientific weighing and measuring, you will come at last to think all nature is to be explained by the ponderable and measurable, as Professor Tyndall appears to have done. On the other hand, if you employ your time in the over-activity of the organization at play in religious emotion, that kind of emotion will determine the turn of your thoughts until you are ready to oppose the conception of order in Nature in which religious liberty and tolerance are grounded, as many of his opponents do.

In short, special kinds of activity determine character. Thus are we creatures of our own activities, and he who has no special activity will have no character.

From "Conversation" just one sentence which I should like to print and send to all the "holier than thou's" which infect our country.

True goodness is not the sort you pride yourself in and force upon others. True goodness is a thing ascribed to others, rather than felt inside, since the days of the Pharisee and publican.

With false and pretended culture Moxon had little patience and he takes his fling at the *worms* who cover themselves with intellectual scraps. I take the liberty of italicizing one part of the following:

Did you ever see a caddis worm? When I was fishing I never could stick a hook into a caddis worm. I never contemplate a caddis worm without a certain feeling of brotherhood. Nature is essentially too satirical in the way she takes off one thing when she designs another. Every one has, by nature, the faculty of picking up bits wherewith to furnish himself according to the grounds he is upon at the time, as the caddis worm dresses herself in scraps of green when she is upon the leaves, and in bits of brown when upon the stones. Don't despise the simile and think it rough. Don't say to me, "Everything has both its higher and lower parallels; why should our elevated minds take the lower parallels?" I should be tempted to reply, "To keep down at our proper level, O brother worms!" In point of fact, I expect, the mental dress of most of us is rougher by comparison with the best satins and velvets at Swan & Edgar's. *Most minds are like maggots dressed in scraps, and all that is their own is just the glue the scraps are stuck with; and so much is the weakness of even this glue recognized that in common*

conversation your subject must not be too deeply or seriously followed. "The human mind" won't endure it. In other words, you mustn't shake the scraps much for fear you see the maggot.

In "Nothing, a Protest against Buttermilk" he again states his ideas concerning books. One or two excerpts must serve:

But alas! there is a vast heap of trivial petty and fragmentary and doubtful generalizations which you will be made to learn in your great big books. Study well your books, but things teach more of you. Books tutor your reason; things tutor also at least your imagination, and if you are observant will store in you a fund for all your faculties, from fancy up to faith. Students must be fed on very concentrated intellectual food in their books, but the amount of it should bear some proportion to their time and powers. Soon they will be like so many maggots born so very deep in such very big nuts that the poor things never or rarely succeed in eating their way out to wings and daylight; perishing thus miserably short of a higher life because the supplies of their larval stage were too voluminous. Such abortive book-worms the colleges are trying to make you all. Help yourselves, or God help you! Read with judgment, and use your senses well. Your books have no right to do more than suggest, guide, and aid towards your work in the real world you are to become meanwhile a part of. The man who only crams his "mind" with the trivial generalizations that swell up your volumes too big gets a peculiar look of the species of dissipation that is quite characteristic. Blankish, awanting, abstracted, and with a certain unreadiness on the present occasion, whenever that may be—why, even the animal young man from the turnip-fields who hands about our Fives-Court is wider alive than he.

Of the great increase of printed matter he voices a sentiment which many of us have expressed somewhat differently. Had he lived today I wonder what he would have said,—perhaps what he did in 1876:

The cheap press pours out the crude details contributed by little people; and other people no greater, except as more voluminous, sweep up the details into books of ever-increasing size, from the last edition of your once portable classbook, through So and So's system of large books on medicine, up to Ziemssen's regiment of tomes. Heaven help you! Can a cheap press multiply your precious moments?

(To be continued.)

Glauber's Salts.—Glauber, born at Karlstadt in 1604, was a transitional figure between the alchemist and chemist. He believed in the philosopher's stone, elixir of life, transmutation of metals, and universal panacea, and other things to which modern science is returning, but he also had some notions of the science of his time, was familiar with the preparation and properties of numerous chemicals, and knew how to manufacture some of them, such as commercial niter, on a large industrial scale. He applied chemical knowledge to cookery, and could also make artificial gems. In 1658 appeared his book entitled "Opera Chymica," which, despite its title, was written in German. He had no classical education and, as far as culture went, was a primitive man. This lack of education reacted on him, as it had on others like him, and he was filled with vexation at himself and bitterness toward the learned. After having lived in Vienna, Cologne, and Frankfort, he died at Amsterdam in his sixty-fifth year. The discovery of the salt which bears his name was made during his sojourn in Vienna. He had complained of stomach disorders and lack of appetite, and had been advised to drink of a spring which was situated in the close proximity of vines. This was near Neustadt in Austria, and its virtues were attributed to niter. Improvising a cup out of bread, he drank of these waters and, as his appetite showed signs of returning, he kept up his visits to the spring, and eventually recovered. After having drunk the water, he finished by eating his cup of bread. The next thing for a chemist was to analyze the saline ingredients of the water. He soon showed that they did not include niter. The crystals of evaporation resembled ice in texture, being long, slender, and transparent. Thrown on a live coal, they did not crackle like salt nor burn like niter. Out of gratitude he named it *sal admirabile*. He identified it as sodium sulphate and chemists conferred upon it the name of the finder.—LECLERC in *La Presse Médicale*.

Opodeldoc Balsam.—This substance is rarely prescribed to-day, and possibly this neglect is to our disadvantage. The agreeable odor, the "pretty" appearance and mother-of-pearl effect, the unctuous feel, the warmth when rubbed into the arm, for example, make a combination of appeal to the senses not easily excelled. Moreover, it does not damage or stain delicate linen fabrics and is harmless to the skin—an excellent combination of *suaviter* and *fortiter*, for it may often produce the desired therapeutic effect. Perhaps no word has produced more speculation as to its etymology. It has been derived from the Celtic and Sanskrit, from the Low Countries, etc., etc. In Frisian patois *op en del* means up and down, and suggests its use by rubbing. Other derivations are more fantastic, although there is some agreement in deriving opo from the Greek *opos*, juice. The best expert testimony favors the coined word theory, and some would have it that Paracelsus himself coined it. The original significance was general or, in other words there were a number of different opodeldocs. Paracelsus gives an opodeldoc of the four gums and resins, an opodeldoc of cantharides and others of pine-pitch, rosin, old wax, ammonia, myrrh, etc., etc. In other words, an opodeldoc was at first a liniment. The opodeldoc of the French Codex of 1758, which contained 31 ingredients, was, however, not a liquid at all, but a plaster. The balsam, as used in comparatively modern times, is presumably after an English formula and after many years of change is found in the French Codex of 1818 with but six ingredients—soap, camphor, ammonia, rosemary, thyme, and alcohol, in other words, the linimentum saponato-camphoratum of the National Formulary. Thirteen other ingredients had been discarded from time to time. This fluid might also serve as a vehicle for chloroform addition, and in fact, for any addition at the practitioner's pleasure. Leclerc, from whom we quote the preceding, still uses it with addition of laudanum and tinctures of stramonium and mandrake.—*La Presse Médicale*.

Action of Ferments and Toxins on the Gastric Vagus.—Loeper and others call attention to the recent discovery in the laboratory that pepsin can obtain access to the branches of the vagus and diffuse therein. Experiments show that ingested tetanus toxin may travel along the nerves to the medulla. In these cases, however, the stomach has been ligated. He also found a pepsin-like enzyme in the medulla which was not present in the cerebrum. In certain diseased conditions of the human stomach it is probable that this factor might be superadded.—*La Presse Médicale*.

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Original Articles.

SLEEP

(NORMAL AND ABNORMAL)
AND THE MECHANISM OF SLEEP.

By J. VICTOR HABERMAN, A.B., M.D., M.S.D. (Berlin).

NEW YORK.

THE recent pandemic of lethargic enceplalitis with its cardinal manifestation of drowsiness and sleep-impellance and the not infrequent complication of associated insomnia at night or as a sequella again focussed attention on the nature of sleep and questioned its origin, and exhumed old theories from desuetude theories which claimed a "center" somewhere in the brain, sustaining consciousness, hence keeping awake, or out-shunting it — thus causing sleep.

The most famous of such theories was that of Mauthner, who from the concommitance of somnolence and occular palsies in a triad of diseases inferred that the sleep switch must lie in the "superior" area of the brain stem in which the occulomotor nuclei were likewise imbedded. Disturbance here would enjoin sleep and invalidate the motor eye. In the very earliest of the publications on epidemic encephalitis, Economo, no doubt taking his clew from Oppenheim, brings up the Mauthner theory and fortifies it through this added instance of lethargy and occular symptoms in the new disease, and the pathological effects come upon in this very brain stem area. And following Economo, without exception, every writer on the subject here and abroad cites Mauthner—and gets no further.

To challenge this now widely acclaimed conception is both hazardous and bold; and yet a careful study of the matter easily discloses sufficient flaws to discredit Mauthner's and similar contentions and offers data for a more tenable theory, or at least a sequence of facts which will prove a stabler foundation to build on

The Theory of Sleep and the Sleep Center.—On the utility of sleep we need not dilate. The period is one for (cellular-phsiological) recuperation — wear-and-tear recuperation—and accumulation of energy (psychic energy).* During awakeness energy is consumed, through sleep it is replenished, though just how we do not know. Awakeness is synonymous with consciousness. Hence, sleep is a temporary suspension of consciousness, or, as the cerebral cortex is the seat of consciousness 2, 3; of this there is no more doubt, sleep is a temporary cessation of cortical activity. How is it accomplished? One may think of a depression or slowing of the activity, a dissociation of cortical areas or of the entire cortex, a blocking, or discommunication, etc., etc.

Thus, one knows that *association* or memory work by and by produces a fatigue—one feels the oncoming difficulty to associate, hiatuses and gaps occur —with these the bobbing of the head (breaks in the motor tone)—and finally . . . we do not "connect" again, but doze. Fatigue does it, or a fatigue *product.* By some it has been thought that this *product* or metabolism *by-product,* is formed in the brain cells*—by others that it originates in the muscles (through muscle work). Thus, lactic acid has been held responsible, again, Cholesterin, "Kenotoxin," Hypnotoxin, etc. Even in recent years the theory came into its own again by Bouchard,[4] believing he discovered the culprit substance in the urine.

Besides these endogenous products, we know of chemicals (alcohol, drugs) which, though they may first stimulate, soon slow up the associations—and finally provoke sleep. Their action is similar to that of the fatigue products, inasmuch as they produce sleep or sleep-like states, the milder ones really tending to bring on real sleep. Their after-effects, however, vary, vary immensely according to the particular chemical combination of the drug. As these after-effects (muddled mind, heavy, aching, blank feeling, etc.) are surely cortically occasioned, we may assume that the "fatigue

*By which we do not mean to say that cellular energy—and especially nerve cell energy—is the resultant directly or indirectly of sleep. This *energy* problem—when it comes to nerve energy—is very complicated (much stimulating matter on the subject will be found in Bechterew's "Psyche und Leben," to which we refer below). The strain of attention, however (and attention is the chief psychological girder of awakeness), is a constant drain on the physiological activity of the cells. After a period of psychological or physical activity, the *psyche* fags and finally "suspends." This may mean that the cells physiologically have been exhausted. Then comes a period of sleep, after which the *psyche* is again fresh and potent. Hence, we assume the sleep-period the physiological replenishing period. Though all the cells of the body participate, it is the brain cells which are mostly involved.

In this connection the experiments of Weygandt[1] are very interesting, for he found that the fatigue produced by different kinds of mental activity needed various lengths of sleep for recuperation. Thus, a half-hour or so was sufficient to neutralize the fatigue occasioned by an addition task, while five or six hours of sleep—or even more—were necessary in the case of a memorization task. Memory work, therefore, seems to prove a great strain.

*Thus, Ishimaris[4] injected the extract of brains of animals for a time held sleepless into other animals, and put these into a very "sleep-like" state. Mosso made a similar experiment, using the blood of an animal thoroughly fatigued and transfusing it into one having been at rest—getting the same results. Mosso's experiment would merely point to fatigue "products" in the circulation, not to their source.

products" also act on the cortex. The same is true of the "sleeping drugs" and the anesthetics. Yet these very after-effects of the exogenous products (somniferent beverages, chemical combinations called hypnotics, narcotics, etc.), so unlike the after-effects of normal sleep, and so varying, show that there is a great difference between the activity of endogenous and exogenous.* The *fatigue products* theory is also weakened by the facts that over-fatigue hinders, rather than aids, sleep, and that the bedridden and individuals doing little bodily work, also, in spite of a lack of fatigue and "fatigue products," sleep. And doesn't the normal infant, who sleeps most of the day, also sleep at night? And, for that matter, the habit of sleeping, once established, do not children and adults fall asleep when bedtime comes whether they are still fresh or really tired? On the other hand, one might be nigh dropping with fatigue, and fright or danger will dispel it in an instant. (Cf. also on difference between normal and abnormal sleep, below.)

Another theory assumes a lessened blood supply —*i.e.* an anæmia of the brain. Thus, we know that the flow of blood to the stomach (and so away from the head) after a meal is sleep tending, also hemorrhage, or general anæmia and chlorosis. The sleep tendency in the obese is also attributed by Brugsch[9] to brain anæmia (though this explanation does not seem to us especially satisfying). Mosso[9] demonstrated the lessened blood flow to the brain during sleep, and so believed sleep due to a temporary undernourishment. Interesting in this connection is the fact that in infants the fontanells are found sunken in at this time. Direct observations have also been made of the brain during sleep in individuals with a skull opening (through accident or trephination). Dendy observed such a case, and found the brain sunken in and quiescent. When the individual dreamed, the brain rose some, while, when awake, it seemed full and turgescent. In trephined animals, an anemia has also been noticed during sleep (Durham). On the other hand, the very reverse has been thought to be the cause of sleep, namely, a brain plethora, and the reverse condition found on direct observation. Thus, J. Brodman[10] demonstrated a brain plethora, and A. Czerny,[11] in a child with a traumatic skull defect, actually saw the same. Finally, one has assumed an anemia of the cortex and plethora in the deeper brain or indeed in the brain stem (Pilcz). All in all, the evidence prompts us to conclude that neither anemia nor plethora has anything to do with normal sleep—and sleep may occur in, or in spite of, either condition. In the case of hyperemia, one would have to consider whether active or passive. Surely the active, as Wilbrand and Saenger remind us, cannot be especially inducive to sleep. And yet, in encephalitis, whether secondary or primary, there is a general brain *hyperemia.*

Some have thought a greater *fullness* of the brain through hyperemia causes sleep, the very position assumed (proneness) inducing intracranial fullness. (But is this arterial or venous? Very recently Erben[12] showed that the prone position, as well as squatting and bending the head forward, all cause a *venous* hyperemia in the skull.) Others have thought the fullness due to "osmosis" (*i e.* water), the *pressure* causing the sleep phenomenon. But trephined individuals, with a lessened pressure, also sleep. On the other hand, intracranial pressure, as in cases of tumor or hydrocephalus, *does* cause somnolence. Increase of water in the brain cells themselves has also been suggested.

Various "metabolic" theories have been offered. In Mosso's, mentioned above, temporary lessened nourishment was presumed, through lessened blood supply. In Pflüger's[13] complicated theory a lessened intramolecular oxygen formation was postulated, the brain activity being supposedly due to the "exploding-like" change of this (in being used up) into carbondioxide. More recently Howell[14a] also assumed sleep to be caused by lessened cortical metabolic activity, due to decreased oxidation. These theories, however, do not account for the fact that, though asleep, one may nevertheless have cortical activity, as in dreaming, *parvor nocturnus*, sleep walking, even the most active and intense excitability during somnambulism.* The grinding of teeth, kicking with limbs, spasms of muscles, often *only* occur during sleep. Highly interesting is the account of Nanson, in his "Farthest North," that the cold would send one asleep while on the march, and that walking would be automatically continued, *though asleep,* until some obstacle or unusual condition would again rouse one. To these facts we might also add the induced hypnotic somnambulism, to which phenomenon we shall presently return. Still other metabolism theories depend upon a chemical interplay, which, when disturbed, causes insomnia. So R. Heinrich[15] recently made phosphorus dysmetabolism particularly responsible in this connection.

Nor have endocrine theories of sleep been wanting. Thus, the pituitary gland has been held especially accountable as the secretory source in some way or other governing the vegetative function of normal sleep (Salmon[16]), or abnormally as a pituitary dysfunction, giving continued drowsiness or impellance to sleep. True enough, states of somnolence have been seen in pituitary disease (hypopituitarism, tumor of the hypophysis, etc.) (cf. a recent MEDICAL RECORD article by Dana), but these do not explain normal sleep or the periodicity of sleep and waking. Some here contend, like Cushing, that it is not the pituitary disease, but the *pressure* exerted by the tumor mass which causes the symptom. Very different — and elaborate — is the endocrine theory of Sajous,[17] who, referring to Howell's work explains the hypometabolism as dependent on lessened *adrenoxidase* (adrenalin in combination with oxygen), and calls into play an "erection" mechanism of the cell dendrites ("gemmules"), producing when erected a "more exposed" area of myelin to the action of the oxidizing substance (adrenoxidase), and hence, more able to transmit nerve impulses, *i.e.* while awake; on the other hand, when the erections have collapsed or retracted, giving poorer transmission, *i.e.* in sleep. Sajous here takes over and builds on an interesting cellular theory of Lanoitte and Pupin, to which we shall presently return. Let us, however, first complete his endocrine theory—an intricately hypothesized process, which may be epitomized as follows:

The pituitary gland is the *regulator* of the endocrines. In the normal individual sleep is brought about through the sympathetic center (in the posterior pituitary), by

*Nevertheless, the very fact that these chemical combinations *do* produce sleep does bring up a similarity to the theorized sleep-producing fatigue-product, and lends something to the theory.

*A remarkable series will be found in Loewenfeld's study. Two remarkable cases are also described by Lavele (l. c.), p. 12.

its sending constrictor impulses to the arterioles of the anterior pituitary and the thyroid, thus lowering the metabolic activity of the body. Vasodilatation follows in the splanchnic area and blood thus drawn from the peripheral organs, including the cerebrospinal system—hence, lessened metabolic activity in the brain, and diminution of adrenoxidase-laden plasma—and consequently inhibition of activity of the neurones. This causes unconsciousness (sleep). In the abnormal it might be so that a decreased adrenal secretion gives decreased adrenoxidase, and this occurs through depression of the adrenal center in the pituitary, brought about by the thryoid.*

Once or twice we have come upon a direct endocrine(opathic) explanation of the lethargy in epidemic encephalitis, but these were weak, and not offered with much vim.† This is surprising enough, seeing we are at the moment on the full-flow tide of an era of endocrine romancing, an era which might well be dubbed that of endo*crime*ology, with its forced interpretations, unproved reiterations and a harrowing literature almost (not quite, however) vying with the publicity-campaigning and hyperquantivalent assumptions of the now happily waneing Freudian movement.

The cell theory of Van de Lanoitte and Pupin, mentioned a moment ago, we have already written of elsewhere as a possible explanation of the hypnotic phenomenon.[20] It rests on the discovery of Golgi and Cajal that the end twigs of the neurone are not continuous with, but contiguous to, the adjoining cell, interlacing with its dendrites. The dendrites are ameboid, and so, extending, give contact and transmission, or, retracting, loosen and dissolve the conductivity, and in this way cause a partial or definite break in the neural flow (the nerve impulse)—thus explaining the phenomena of sleep, hypnosis and other strange psychic states. Closer entwining of the dendrites, on the other hand, would give better conduction; hence, clarity of thought, etc. Ramón y Cajal even held that on heightened functional activity new dendrite shoots might be sent out, and so form new collaterals. Bechterew had something similar in mind, for he mentions strong stimulation being able to tire the cell, and bring it and its dendrites to contraction.[21] The ameboid action of the dendrites possibly functioned like the positive and negative chemotaxis of leucocytes (hence, the effect of coffee, alcohol, narcotics, etc.). Cajal also held that such contractibility occurred in the glia cells which form the contact between ganglion cells, and which may thus also strengthen or check the conduction. For Cajal the contraction of the intervening glia was brought about by something generated in the ganglion cells during activity, and later extruded.‡

Subsequently, Schleich expounded a somewhat analogous theory in one of the most fascinating essays of this gifted writer.[22] Sleep is not a negation, a receding of consciousness through the presence of fatigue products in the blood—some physiological poison dimming the mind; it is, rather, an active process, a periodic reflex inhibition (stimulated through the sympathetic) of our situation consciousness, a periodic outswitching of our mental orientation in the immediate world at large, a withdrawing of all the sensory filaments with which the individual is rooted in his environment. How is it done? Between the ganglion bodies are neuroglia cells, capable through blood or lymph stream, to fill up or deplete, and so stretch out and brace connections, or draw in and sunder them. They act as moist or dry insulation plaques between the cells—easing or impeding or blocking conduction. Sleep is mind life, minus the situation consciousness — and it comes to pass through active severings in the afferent paths made possible by this ameboid activity of the neuroglia.

These highly fetching and by no means illogical* theories, based on ameboid "pseudopodia-like" activities of the dendrites of ganglion or glia cells, were somewhat punctured by the studies of Held, Dogiel, Apáthy, Bethe and Nissl, which demonstrated that the real elements of the ganglion cells were *neurofibrils* traversing the axones, and continuing through the abutting cells (*c.f.* also on "nervous gray"). I say "somewhat," for the neurofibril theory itself was later again challenged (Lenhoesék, Hoche, Schmaus-Saki, etc.)†

Let us now turn to the assumption that sleep is attained through dissociation of the cortex *en grosse*, by blocking the sensory path somewhere below and shutting out all stimuli from the periphery. This is the idea entailed in the Mauthner,[23] Trömner[24] and similar "sleep center" theories. It seems true enough that the sensorium needs stimulation to be kept awake. Reversely, dim light or darkness, quiet and repose, are so sleep-tending that they have become our veritable "handmaidens to sleep." The returning darkness of night (alternating with day), and its influence on the sympathetic system, has, in fact, often been deemed—and no doubt, for the most part, is—the cause of the periodicity of sleep. The effects of monotony and sameness have been similarly explained as a shutting down on the afferent impulses (*i.e.* monotony—*mono*tone)—thus, the zum-zum of the propeller, the

*Other endocrine theories are those of Cyon (*Pflüger's Arch*, iv., Bd. li.), who thought that the thyroid regulated the blood influx to the brain, lessened blood causing sleepiness. Lorand,[25] who cites Cyon, holds a somewhat similar idea, but is very unclear (also cf. footnote on thyropenia, below).

†It is of interest to note that outspoken or typical endocrinopathy, due to or consequent to epidemic encephalitis, is apparently of utmost rarity. Two cases of "hypophysial adipositas" following the encephalitis have been seen.[19] On the other hand, Eeman found Sargent's "white line" present (hence, adrenal insufficiency) in half of his cases (excerpts *Z. f. N. and Ps.*, xxv, 4, p. 195).

‡For other early literature on this subject see Rabl-Burckhardt's "Sind die Ganglionzellen amöboid?" *Neurol. Zent.*, 1890, No. 7, in which physiological amoiboism was first suggested; Pupin's La Neurone, Thèse de Paris, 1896; Ramón y Cajal's "Allg. Betrachtung über d. Morphol. d. Nervenzellen," *Archiv. f. Anat.*, 1896, chps. 3-4.. Duval independently of the above came upon the idea of dendritic ameboism (*Revue scientif.*, 1895, C. R. Soc. Biol.).

*I do not know why they should have been so lightly brushed aside in the literature as "overfanciful."

†Sajous (*l.c.*) ingeniously believes the neurofibrils to be *fine canals* continuous with the fibrils passing through the neuroglia cells, *containing plasma*. The neuroglia cells connect the ganglion cells with the blood vessels—are the intermediaries. Through these fine canals the adrenoxidase-laden plasma flows, the oxygen of which combines with the phosphorus of the myelin giving chemical energy, *i. e.* the nerve impulse. (Bechterew believed that one of his students, Possek, gave "convincing evidence" in his laboratory, in 1904, of a plasma-canal system within the ganglion cell, *l. c.*,[21] p. 200.)

swish-and-roll of the waves, the lulling cradle song, even the metronome or recurring pendulum swing of a clock, the very visualizing of the eversame sheep hurdling the eversame fence in the eversame way (so universally used as a home remedy for insomnia), or the mere continuous counting—all being stuff of the same thing. A famous case of Strümpell's,[25] however, seemed to confirm the point at issue, for here was an individual, with almost complete cutaneous and sensory anesthesia, in whom only the left ear and the right eye still served as avenues of sensory approach. As soon as the ear and eye were covered—wholly severing this mortal from any connection with the outer world—he slept. In fact, it took but a few moments, and sleep obtained. (A somewhat similar case had already been observed by Ziemssen.[26] Strümpell himself did not think the shutting out of sensory stimuli solved the problem. This closing down on incoming impulses, however, brought many small cortical arterioles to collapse, and so induced a depletion in the cortical blood supply (*i.e.* again the brain anemia theory). Against this theory stands the intense awakeness and awareness of Helen Keller, who neither sees nor hears, but only feels;* and, again, the fact that, when fatigued, if fatigued enough, we will sleep in spite of incoming sensations, in spite of the rattling and jaunting of the sleeping car, in spite of the repeated din of passing elevators, the noise and toots of automobiles, the whistling of locomotives —the usual fanfaron of city clamor—indeed, even through cooties itch or artillery thunder. The monotony of the aeroplane propeller, despite its terrific roar, is said to cause intense drowsiness. The cold itself, though nipping, is sleep inducing, and those near death through freezing have great difficulty keeping awake. Our dreams also prove that the wires are not all down between cortex and periphery, for many are occasioned by peripheral irritation of retina, skin, ear, teeth (pain), feelings referred from stomach, chest, or elsewhere. Thus, many if not most of our dreams are primarily peripherally (or viscerally) induced illusions.†

But to return for the moment to Mauthner's and Trömner's much-quoted and repeated conception of a blocking through something or other (irritation or inhibition of a "center," or edema or pressure, etc.) in the brain-stem or ganglion region of the cerebrum, in the chronic diseases in which abnormal processes are found in these very regions—namely, Wilson's disease, Strümpell-Westphal sclerosis and other lenticular and thalamic syndromes—*Nonne*[28] *disconcertedly reminds us that just here one finds no somnolence at all!*

Nor must we, finally, forget to mention such conditions in which the brain (cortex) is strongly invalided, as in imbecility, in the scleroses, microgyria, aplasias, etc., and the individuals are nevertheless not more sleepy or asleep than others* (in fact, some showing great mental erethism), or, again—and this is the last straw—the famous dog of Goltz (and more recently, I believe, another dog —that of Rothmann), kept alive, though both his hemispheres were removed, this dog having his periods of waking and sleeping, much as other dogs. It has also been pointed out (Ziehen) that frogs will still go into winter sleep, though their hemispheres be severed. In these cases the ganglia doubtless serve as cortex.

Bechterew (l.c. No. 2), commenting on Goltz's dog, points out that the great difference between this dog without cortex and the normal dog was the *absolute absence of initiative*. Though lower centers may take over higher activities, these now becoming automatic, such a dog does not develop initiative. Let us remember that in epidemic encephalitis an *absence of initiative* is a striking symptom—this symptom, as we might here infer, being distinctly cortical, or rather, pointing to cortical implication.

Looking over these divers sleep theories we are constrained to admit they are in no wise satisfactory, even though one finds a modicum of truth in many lines. It would seem that the various facts recorded and postulated as causes of sleep are rather accompaniments, or even resultants of the phenomenon. One is somewhat astonished that no thought has hitherto been given to the possibility of a variance between normal and pathological sleep; that is, sleep normally or abnormally induced. Let us for the moment also disregard this matter. From the evidence so far accrued, we may at least assume one can sleep whether "product-fatigued" or not, and whether there be anemia or plethora in the brain (and whether the plethora be arterial or venous). One may sleep with lowered or heightened intracranial pressure, though the latter is (pathologically) especially sleep tending. Sleep does not depend upon hypo- or hypermetabolism, though the former (in the sense of lessened energy *detonation*), no doubt, more often obtains,† and however endocrine dysfunction might induce or hinder sleep, regular sleep is nevertheless present in all types of endocrinopathy. Or one may summate these facts more graphically and conclude that in all probability sleep is not caused by, nor necessarily concomitant with fatigue-products, brain anemia or plethora, hypo- or hyper-pressure nor metabolism, nor plus or minus endocrine functioning.

Writers heretofore have likewise failed to consider the very salient point that one can sleep *on suggestion*, and be put to sleep *through hypnosis*. What is the mechanism here? On suggestion one

*Laura Bridgman was another example.

†On the other hand, it is interesting to note that a real Babinski has frequently been obtained[27] in the first few hours of sleep (when sleep is deepest), showing that there is a cerebrospinal functional break or a shunting out of some part of the cortex (the motor area?). (An interesting yet brief study of the source of dreams in this connection will be found in a pamphlet by H. Henning, Der Traum ein Associativer Kurzschluss, Wiesbaden, 1914; cf. also H. Bergson, Dreams, 1914, p. 32, and especially S. de Sanetis "I. Sogni," Tourine, 1899, Schmidt trans., 1907, chapter xii.) The maintenance of muscle tone during sleep, by the way, shows that the afferent paths are intact and that impulses are constantly streaming out.

*There is a great sleep tendency, however, in cerebral arteriosclerosis, if considerable, in late stages of paresis and in senile dementia.

†It is not improbable that various kinds of chemical activity are going on at the same time: that associated with the "up-keep" of the cell, that which has to do with the elaboration and storing of psychical energy—or the material from which the psychical energy is to come. No doubt both hypo- and hyper-activities are simultaneously present in the same cells. It is logical to presume that the feeding up and energy accumulation and storing activity is greater during sleep, the expending activity or activities greater during the waking period.

can (and the discerning physician uses the trick to advantage) produce a physiological state similar, if not identical to that during sleep: quiescence, relaxed muscles, a breathing in which inspiration is somewhat lengthened and expiration somewhat hastened, with a pause after expiration, the eyes looking somewhat upward and inward, the frontalis and eye lids being utterly relaxed. If the patient suppresses active thinking by *attending* to nothing* (this is greatly aided by the relaxed frontalis—and relaxed stapidii), and the room is quiet, he will readily fall asleep *if there are no counteracting factors*. Where such are present, these must be overcome or obviated (*i.e.* psychotherapy, etc.). Here, however, sleep is not the equivalence of this physiological status, but rather of the psychological one it creates: namely, a subsidence of consciousness, or, more exactly, a letting up on attention and association—a non-attending and non-associating—and hence, a gradual, passive waning of awareness —until its last diminuendo ebbs into the void we know as sleep.

In hypnosis the process, though differently, actively, innervated, is one which also accomplishes a retrenchment through dissociation, a narrowing of the association field, an islet of awareness being kept awake so as to maintain *rapport*. Directly the activity in this narrowed pale lets up, *i.e.* the inner attention slackens, *rapport* ceases, and the subject *falls into ordinary sleep*. In hypnosis, therefore, some portions of the cortex are awake, other portions are asleep. *Awakeness of some brain areas, then, is compatible with sleep in others.* This is very interesting to remember — and likewise the facts that both in producing sleep through suggestion and through hypnosis, the sleep phenomenon is cortical and cortically (*i.e.* psychogenically) induced.

In ordinary sleep, if one reflects for a moment, cortical areas—or islets† of consciousness—may also passingly awaken, though the individual continue to sleep. Thus, the dream, or the nightmare. Should these become *too awake*, however — their molecular oscillations too excessive—the brain as a whole awakens. In certain types of individuals (*i.e.* as in the hysterical—who are "dissociate" individuals—or in other psychopathy) the awakeness in some areas may be quite intense, and the subject still remains asleep; so, in sleep-walking, sleep-talking, *parvor-nocturnus*, etc. Ordinarily, however, though a certain small amount of psychic activity (awakeness or consciousness) may go on in the cortex, when this becomes too extensive in area or excessive in intensity, the brain as a whole awakens. Should the activity, to begin with, be too great in any area, the patient cannot fall asleep at all.

Does the area itself have anything to do with it, *topographically;* thus, are certain areas more apt to give a general alarm (diaschisis?) than others? The speech center we know is often awake (talking in sleep) while we sleep; the visual still more often (in dreams); the motor frequently, in such a way that one turns over or moves or is restless, very unusually (in the abnormal) in such a way that the individual sits up or gets up and walks about. In the latter case the eyes are open, and the patient also, though in a restricted sense, sees. Strange enough, however, as Ziehen makes mention (Phys. Psychology), movement, act and deed are usually only hallucinated in our dreams, our body lying quiet. The hearing center seems more delicate and complicated.* Where this is activated (it may take much to do so — a clap of thunder), the patient awakens. Even in our dreams visual activity predominates,† and the auditory is almost nil, though it must be admitted that sounds, possibly even minute sounds, within the ear, may awaken *auditory optic* illusions. The center of taste and smell are usually *dissociated*, though we can produce the consciousness of taste in the sleeper by putting something into his mouth, while the olfactory area, if stimulated—that is, in the event of an odor or scent reaching consciousness—more readily awakens the sleeper (odor of smoke, for instance). One might think in this discussion of the perception centers themselves, or of the "association fields," and the possibility of one or other perception center shunting (or awaking) more or less energy into the "association fields." As to the amount of activity possible in this brain area (Flechsig's), and yet compatible with sleep, one cannot at the moment tell.

Many of these questions could be approached, and possibly solved, through the study of hypnosis, if the medical profession would only forget stage hypnosis and the mysticism and pseudo-science which the word *hypnosis* connotes, and ponder the matter with the sanity and dignity it deserves.‡ At present one can only say that to maintain sleep, it seems no more than a certain amount of cortical activity, this probably varying in different individuals (either in area, or in intensity, or both), may obtain, and that if the activity exceed this amount,

*Immanuel Kant, in a little treatise (Von der Macht des Gemüts), now almost forgotten, berates the physician for his advice to the insomnic, to drive out all thoughts and *think of nothing*. Another thought will surely come in place of one crowded out. Kant himself, suffering from insomnia due to severe podagral pain, rather seized upon some indifferent thought, such as the word *Cicero*, and attended strongly upon it, and found that the pain speedily grew faint—and he would fall asleep. Attending to something indifferent, therefore, may be the better advice, though I find I can readily think of "nothing" by rapidly shifting whatever thought or picture may come before my mental eye. Sometimes moving the eyes, as if changing the point of vision, helps.

†This should not be thought of as a circumscribed area, such as a clot or an abscess might compromise, but rather as a "*circuit* of wires" ramifying in many directions.

*All sounds do not appear to affect the sleeper alike —some disturb him, some do not. He gets used to some (as, for instance, the sound of a clock or passing elevated trains), and no longer hears them. Loud snoring in the same room may not be heard, while an unaccustomed sound will prove startling. The sleeper is also strangely *selective*. A mother may be obtuse to every sound and noise, and yet awaken at the slightest cry of her infant. It is said a telegrapher might doze off and have many messages not meant for him tick by, yet be at once awakened on the sound of his key number. On the other hand, the loudest snoring does not seem to annoy the snorer!

†Most impressions from the external world come to us through the visual sense, and most persons recall their past experience in terms chiefly of residua of former visual impressions (Meumann).

‡It is interesting to note that abroad great clinicians like Oppenheim and Nonne since the war have again espoused hypnosis, the latter having therapeutically employed it to very decided advantage.

the individual awakens. This implies also that sleep *lies* in the cortex, and may be approached (induced or inhibited) through any of the avenues leading thither.

As there are two types of cells in the cortex, however, the one capable of a *psychical correlate* (*i.e.* consciousness), the other not capable of such manifestation, one cannot say whether solely the first, or also the second, plays a part in the general sleep or the general awaking. We will only remember that in the "sensory area" one *feels*, and in the "optic area" one *sees*, but that in the motor area there is no psychic correlate, and one only becomes aware of the movement after one *sees* it or *feels* the action of it. There *may* be a third type of cell. Thus, in affection of the frontal lobe we at times get neither a psychical phenomenon of sensation, nor an action without psychical phenomenon, but merely a change in *tonal feeling*. The disposition, or mood, more precisely, the tonal feeling, of such an individual may be entirely changed. In a frontal process the patient may be gravely ill, and still be in a pleasurable mood, minus all concern. The same has been seen in lethargic encephalitis. We might also remember that the remaining body cells (all, or certain areas?) play some part in sleep, the same simultaneous hypo- and hyper-metabolism activity obtaining here as in the brain cells. Cf. also the "brainless dog," above, and the winter sleep of certain animals.

And now let us round these facts into a homogenous something, which we might well term a *psycho-physical* explanation or theory of normal sleep, for our whole study leads us to this conclusion: Sleep is a sequence of phycho-physical phenomena, originally more or less consciously associated, now running off automatically, like something down a groove. It is not a simple "least resistance" groove, but rather a complex series of links or relays of conscious and reflex acts, associations and psycho-reflexes, now running off automatically, a psycho-physical series commensurate to an automatized association of acts and ideas.† Thus, at (approximately) the wonted time—night—we go to the wonted room—or a room set apart for sleep, a *bed*room—(and, though we may or may not at all be tired) start undressing, let up on mental effort (directed thinking), go to bed, lie down with muscles relaxed, the room having been darkened—and all being quiet—*close our eyes*. The scene is actively begun, but passively continued. Little by little, most of the stimuli from the peripheri, "from the environment," as Schleich would say, have been turned off and our mental *associations* for a brief spell still passively wandering, slow up—and presently come to a standstill . . . and we're asleep. One link naturally dovetails into the other. Darkness closes our eyes—it is, in fact, difficult to keep the eyes open in the dark;* and closed eyes slow up our thinking—it is difficult to think on with closed eyes—and waking is not possible (normally) without thought.

The psycho-physical series need not always run off in just this sequence. The child used to a certain cradle "starts off" to sleep as soon as it is put in. The monotony of the mother's song or rocking may start the series while on its mother's lap. The grownup may, apart from the "wonted hour" and the "wonted room," be made sleepy through *monotony*—sound of rolling waves, vibration of a train, sitting alone with no one to speak to, or nothing to read or to do, or through mere lassitude, or "spring fever"—he begins to yawn, feels his eyes grow heavy and droop—till finally they close, and sleep has come. (Does a dissociation of the "association fields," rather than merely of the perception-centers, play a prominent part in this sleep mechanism? It appears so.) *The closing of the eyes is one of the strongest links in the sleep-mechanism chain.* Above we actively closed the eyes on going to bed; here monotony has done something, *cortically*, which robs the lids of their power to hold open, and they passively droop. This inability to hold the eyes open is usually the last defeat before capitulation. Cigar smoke filling a room may irritate the eyes so that they feel heavy, and tend to close, and one gets "sleepy." In these various instances there is a cutting out of external stimuli through monotony, or closing of eyes, or both, and thus a narrowing down of cortical activity to the point where sleep supervenes. One might think of the ganglion cells (and their inter-cells) slowing up their molecular vivacity and calming down, and, because of it, many other neighboring areas kept oscillating through this ganglion activity now also becoming mute. These cells or areas would doubtless show a lessened blood content, lessened arterial pressure, lessened turgescence, lessened dissimilation (or catabolism or energy detonation) and increased assimilation.†

On the other hand, the cortex, *i.e.* the ganglion cells, *may* start the sleep process—*and here, too, begins the chapter of abnormal sleep*—by receiving an inhibiting potion, if we may conceive it so, either through the accumulation of its own fag products, or fatigue products accruing in the body and brought thither by the circulation. These so-called fatigue products need not play any part in the sleep process (as we have seen above); or they may be co-active and *help* in the cutting down of energy; or, again, they may at times prove sufficiently insistent to play a very cogent part, and so throw sand not only into the eyes (the "sandman"), but actually prove a kind of sand—or inhibiting substance—within the cortical cells, slowing up the molecular

*Not only this; but a direct jocosity or witticism (*Witzelsucht*) has been noted in both epidemic encephalitis and disease of the frontal lobes (especially frontal tumors, to which Oppenheim was first to call attention). This strange witticism has, however, also been noticed in chronic alcoholism, in senility, in the manic-depressive, the catatonic and in psychoses following brain trauma. Though the symptom points (with a question mark) to the frontal lobes, it must be admitted (Kraepelin) that it is seen in processes that go wide of the frontal area. In most of these cases the mental state also shows great instability of tonal feeling.

Connected with this frontal area appears to be still another function which may depend on *special cells* giving a particular kind of energy, namely, that accountable for spontaneity. In frontal injury or disease (especially through bullet injury) there is often found a lack of spontaneous speech, or even thinking, or spontaneity of movement or action. Cf. Schob's recent study, *Allgemein. Zeit. f. Psych.*, No. 77, H. 4 and 5 (cf. also on *initiative*, above).

†For a detailed account of acts and ideas in series become automatized, and a mingling of conscious and automatized series, see our study on Feeling, Association, and Psychoreflex.*

*Conversely, it may be hard to keep them closed in the light. Thus, Nonne mentioned the difficulty he had falling asleep in the North with the unwonted midnight sun streaming through the windows.

†Just what part the thyroid would be playing one can scarcely conjecture, not knowing whether its activity is primary and intracellular as a ferment or specialized food, or secondary, its action being on the cerebral blood influx (as Cyon thought), or on the blood pressure, or as an oxygen carrier or detoxicating antibody. Clinical experience would lead one to intimate that thyroid substance acts as a *sensitizer* to the cortical cells (heightening reception to stimuli and expediting detonation, or in some way intensifying tonal feeling?). *Thyropenia* would therefore not cause, but rather aid sleep through cortical desensitization—just as, reversely, thyroid feeding (therapeutically) stimulates alertness and mental acuity.

speed (or drawing in of dendrites, if you will). In this way it comes about that *energy* is not handed on, the nerve *charge* not being propulsive enough, not *going through*. Hence, the associations show breaks—and, finally, no longer *connect*.

We can feel it coming on—and in a measure strive to ward it off. Indeed, the fatigue products, whatever their nature, or rather their activity, may be combatted. Thus, however fatigue-products burdened we may be, if a book is *interesting* enough, we tirelessly read on. The *need* of completing a task may keep us at it long past the usual sleeping hour. Desire for enjoyment (the dance, the card game) may make us quite immune to "products!" They are also neutralized by morphine (in fact, remarkably so), by caffeine and nicotine in the form of coffee and cigarettes, and stimulants like a splash of cold water or cold tub, or by keeping in motion—and finally are put to actual rout by worry, care, fear, eroticism and pain.*

But the "fatigue products" may be reinforced or substituted by "products" in the nature of chemicals, which may be mild, like lupuline, hops and alcohol, or stronger, as in the case of sleeping drugs, or still stronger, in the form of narcotics. These all do something in the cortex inhibiting ganglionic catabolism, inducing sleep. Or, again, with overdosage, they stir rather than sooth, and so lead to delirium and manic or other psychotic outbreaks. Still other chemicals, bio-chemicals, belong to the same category, namely, autointoxicants, as found in uremia and eclampsia, and toxins of infections, products of bacterial activity and possibly bacterial decay. These, too, benumb the sensorium into sopor or lethargy, and, if sufficiently ample or intense, lead now to delirum, now to coma, now to jactitation, and again to paralysis or death.

Pathological sleep, or sleep pathologically induced, therefore, resembles only that type of normal sleep which begins with cortical de-energization. It merely resembles it, however, and is not identical, for normal sleep, to a considerable measure, can be held up, and is outbalanceable through interest, need, etc., and is soon nullified through rest; while pathological sleep, sleep that is drug- or toxin-induced, is aggressive and insistent, scarcely, if at all, combatable (unless one remove the cause), and not annulled through rest.

Our theory may claim validity, even though we do not precisely know what goes on in the cortex. The ganglion or cortical *activity* achieving and sustaining consciousness is but one of several activities going on in these cells. We might conceive of it as a special dissimilative process in which *energy* is produced and sublimated, or that during rest periods potentially amassed, now tensely set off. We say *special* process, for we know that other energies, such as electricity, warmth, that which maintains nutrition and life of the cell, etc., are also being elaborated in the cells. In psycho-physical theories, such as Ostwald's or Lehmann's, physical activity is presumed, through a dissimilation process, to be transformed into psychical energy. In the waking state this is constantly going on. As we are "keyed up," it increases. Some of it is also going on during dreams. Recently Berger[20] concluded that in brain work an energy amount of about twenty meter-milogram is transmuted into psychical energy per minute. When this special dissimilation simmers down (a slowing of the intramolecular velocity, a letting up on electronic cleavage?), it is probable that at the threshold a state sets in, which, if widespread in the cortex, gives the phenomenon of sleep. It may be that, through lessened activity, the dendrites are drawn in, breaking connections, or that, in some way, the lessened ganglion activity gives the neuroglia the overhand, and this clinching in shuts off conduction; or, finally, as Cajal and Schleich thought, in the process, something which stimulates the glia may be extruded from the ganglion cells.

When we come to the pathological, another element is added, that of aberrence of the process. The simmering down may be so rapid or go so far that it takes a long time to again establish normal reactivation (hence, the cloudy, thick head after a narcotic). Or, on the other hand, the dissimilation process may become so intense — *or abnormal* — that we get not merely awakeness, but elation, delirium, etc.

There are individuals, who are in themselves abnormal, who are over-sensitive or *idiosyncratic*. Overexertion or fatigue unmans them, and it takes several days before they recover; or, again, such overexertion or excitement produces an insomnia lasting for several nights. Again, drugs, even mild hypnotics, may be reacted to abnormally. Bromide, one of the mildest of cortical depressants, and most easly borne, will muddle some individuals to a remarkable degree. A patient of mine, after a dose or two, came down with a confusional psychosis. Shortly after, not knowing that bromide had been responsible, she again partook of the drug, and went through a similar attack. Luminal is another mild and harmless sedative, acting, like bromide, on the cortex. I have had an epileptic boy on this drug for three years, taking daily doses without the slightest ill effect. Another patient, however, recently, after a few small doses, developed a temporary confusional state. Some time ago I saw a case with Dr. B., the patient being in a remarkably elated, euphoric state, experiencing no fatigue (subjectively) and seeming to need little sleep. The acuity of all his senses was increased, subjectively immensely so. It developed that this patient was intoxicated with chlorotone, which he had been using over a long period. Finally, though chloroform narcosis is for the most part innoctious, I have been treating a patient who, after such narcosis, developed a mental depression and derangement which has persisted and, after several months, has not yet cleared up.

A few other *cortical-sleep* incidents may with interest be added: Fatigue weakens volition. This makes psychasthenia especially pronounced on fatigue. The epileptic, after a convulsion (cortical upheaval and exhaustion), falls into deep sleep. A dipsomanic attack, in which the individual may wander and remain awake throughout a whole night or two, ends in a long sleep. The patient with *flight of thought* cannot sleep (though there must be a tremendous over-activity in his cortex, the same being true in mania, a patient being able to toss about and scream and talk throughout days and nights without the least respite). In alcoholism the cortex is excited; after the debauch, deep sleep supersedes. In chronic alcoholism you may get delirium tremens or a Korsakoff psychosis, both being cortical affections.

(Scanning the above paragraphs dealing with the pathological, especially in considering *delirium*, but also in thought of elation and depression, the theory of amœboid dendrite activity does not seem quite *sufficient*. Here intracellular chemical changes—abnormal combinations or cleavages, together with abnormally slow or rapid or excessive energy accumulations and detonation—seem to give more rational explanation.)

In our careful examination of this subject we have come upon no facts leading to the assumption of a sleep-center in the brain-stem, or a sleep-center elsewhere in the cerebrum. Indeed, our data aggregate in but one inference, and that, namely, that normal sleep is a *psychophysical* phenomenon, wholly referable to the cortex, the *deenergization* of

*Strange to say, in *neurasthenia*, which is a state of chronic nerve fatigue (central-nervous system fatigue), the individual is most fatigued (both actually and subjectively) in the morning after a night's sleep, and "wakes up" more and more as the day draws by, to be widest awake and without fatigue by night.

the (presumably) ganglion cells, either through "products," or suggestion, or habitual psychophysical sequence, or diminished stimulation, being accountable, or, again, a *dissociation of areas* (and hence, of activity and *energy*) through suggestion or the *habitual* nightly reflex sequence. In pathological sleep the cortex itself—the ganglion cells—is *de-*, or better still, *dysenergized*, by deleterious substances (toxins, etc.) working directly upon the cells, blanketing, as it were, their molecular oscillatory play.

The clinicopathological study of encephalitis, and especially *epidemic* encephalitis, tends to strengthen rather than weaken our conclusions. It will be found that, in the light of more modern researches, Mauthner based his theory on false premises, for we now deem many of the symptoms of Wernicke's poliencephalitis superior due to the cortical involvement of that disease, while the African sleeping sickness has also since been found not of brain-stem causation, as Mauthner believed, but a cerebral disease pathologically very similar to paresis and with decided cortical effects.[11] Hysterical narcolepsy, the third instance of Mauthner's evidence, we now hold entirely cortical and hence of no evidential value whatever. In epidemic encephalitis we come upon cases (they will be cited in a forthcoming publication) in which there is decided somnolence *without* involvement of the superior brain stem area, and again cases in which, despite the brain stem involvement, no somnolence obtains. Indeed, we shall endeavor in our chapters on *chorea*, *myoclonus*, and *cortical* forms of the disease, to show that it is far more cortical, in spite of the general absence of cortical necropsy findings, than has hitherto been thought. Finally, and this is most important, Wilbrand and Saenger, in their work on The Neurology of the Eye,[22] point point out that the falling of the lids in sleep has nothing to do with the occulomotor nuclei, but must be a *supranuclear* phenomenon. If the seat of the sleep-inducing process were the region of the occulomotor nuclei, they contend there is no reason why the other muscles innervated from this region should not also be paralyzed. Yet this is not the case, for the bulbs do not assume the position they attain in complete nuclear or asthenic paralysis, but turn upward and inward and also show movements. The contracted pupils (they are contracted in sleep) denote not paresis, but increased tonus of the sphincter iridis, a fact likewise not compatible with a close-down of the nuclei of this region. For Wilbrand and Saenger the cortical center of the levator is probably in the parietal lobe and the ptosis in sleep due to the dissociation of this center in the general dissociation of the cortex. Curiously enough, this study of Wilbrand and Saenger has been entirely overlooked.

From the viewpoints of physiology, psychology, and pathology, then, our theses are sustained if not confirmed, and nowhere are data forthcoming which really negate them. That much as yet remains unclear, unanswered, is true enough, but this does not impair our inference: There is no sleep center; nor is sleep occasioned through subcortical block. Sleep is a psychophysical sequence—a cortical manifestation. In epidemic encephalitis it presumably is likewise cortically induced.

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60 WEST EIGHTY-FIFTH STREET.

Some Cancer Statistics from a General Hospital.—During the period 1901-6 inclusive there were admitted to the Hôpital Tenon, Paris, 1,501 cases of cancer. Of these patients 766 died in the hospital, while 735 left the institution alive. None of the latter was followed up, but it is not believed that a single one survived for any considerable length of time. Of the total, 518 were men and 983 women. In regard to locality 409 cases were cancer of the uterus, 296 of the stomach and 153 of the breast. Cancer of the digestive tube as a whole was much more common in men—364 to 247 in women. Above the diaphragm in the alimentary canal ten men were affected with cancer to one woman; below the diaphragm cancer in men predominated to a considerable extent. The average age of women entering hospital for treatment of cancer of the breast was fifty-four.—*Le Progrès Médical.*

ACTINOMYCOSIS.

WITH REPORT OF A CASE.

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ACTINOMYCOSIS is a more or less chronic infective process occurring in cattle and less frequently in man. The lesions produced in animals lead to the names of lumpy jaw and wooden tongue.

The peculiar clumps produced by the organism in this disease were first noted by Von Langenbeck in 1845. Bollinger discovered the organism in material obtained from an ox in 1877, and Israel reported the first human case in 1878. However, it is probable that previous writers described cases of a similar nature but considered the tumors to be osteosarcomata. Harz was the first to give the causal agent the name of actinomyces or ray fungus.

The actinomyces are organisms of the group of trichomyces which possess many characteristics relating them to the true molds or hypomyces. The trichomyces are distinguished from the higher fungi by their slender filaments and more simple life history. Of the group of trichomyces the actinomyces are the most important and best known.

The parasites appear in the pus from lesions as small granular bodies visible to the naked eye and having a yellow or grayish cast more or less similar to sulphur bodies.

As seen under the microscope these granules appear as rosette like masses having an opaque center which consists of closely meshed networks of filaments. These filaments show true branching which helps to distinguish actinomyces from others of the trichomyces group. Around the margins are seen the characteristic striations, some of which end in club shaped bodies. The organism as found in animals usually exhibits these club shaped bodies, while that found in man usually does not. The appearance of the club shaped bodies is generally interpreted to mean that considerable resistance to the growth of the organism has been present. In addition there occur coccus like bodies in and about the filaments, but their significance has not yet been decided. The organisms are Gram positive but decolorize with 95 per cent. alcohol. According to Wright they are anerobic, but other bacteriologists place them in the aerobic class. They do not form true spores.

As a rule the infection takes place through the upper alimentary tract. In man the teeth and tonsils are regarded as possible portals of entry. The disease occurs endemically in cattle but is rarely communicated from one animal to another. There is no report of the disease being directly transmitted from animal to man. One author reports cases occurring in man which he believes to have been due to the fact that the men slept on hay and straw. As the disease is usually found in men who are closely associated with hay and straw, and particles of these are sometimes found in the lesions, it has been suggested that hay, straw, or other types of grain may play an important rôle either by actually transferring the infection or by causing an abrasion of the tissues and allowing the entrance of the infective organism. The portals of entrance of the actinomyces in order of importance are (1) mouth, teeth, and tonsils; (2) respiratory tract; (3) gastrointestinal tract; (4) skin.

From the above it can be seen that actinomycosis may attack many parts of the body, although it is most commonly seen in the region of the angle of the jaw. It is said that in 56 per cent. of all reported cases of actinomycosis, the lesion has been in the jaw region; the digestive tract has been invaded in 20 per cent. of cases, the lungs in 15 per cent., and the skin in 2 per cent. The remaining 7 per cent. of cases involved the breasts, ovaries, testicles, bones, brain, etc.

Generally in man the infection is a localized process, spreading only along the tissue planes by continuity. Rarely do we get a generalized infection due to metastases. Late in the disease blood vessels may be ulcerated into and thus infective emboli are carried to some part of the body far distant from the original focus, and these emboli cause independent lesions. In the spread of actinomycosis the lymphatics play but a slight, if any, part. No glandular enlargements develop near an actinomycotic lesion.

The symptoms of the cervicofacial type of actinomycosis fall into two stages: first, the stage of induration, and secondly, the stage of softening. In two to four weeks after infection takes place there develops about the site a painful swelling. It is firm in consistency and symmetrical in outline. As the swelling increases, trismus of the jaw develops. As a rule, in the primary stages there is little systemic reaction, such as fever, etc. Indeed, the swelling is often thought to be due to carious teeth, mumps, or osteosarcoma. Then we pass on to the stage of softening in which there is usually secondary infection. This appears in six to eight weeks. The mass breaks down and sinuses form. The pain to a large extent ceases and the patient is able to open his jaws sufficiently to eat and talk. The sinuses may persist for months, alternately opening and closing till finally a great thickened jaw and cheek remain showing many scars. The bones are rarely affected in these cases.

The prognosis is not very good. In infections of the face and neck the mortality is 11 per cent.; in infections of the thorax, 83 per cent.; in abdominal infections, 71 per cent., and in cases where the brain is involved, 100 per cent. At the best the disease is one of a very chronic nature and prone to exhaust the patience of both the physician and the victim.

The treatment does not appear to be very satisfactory. Abroad, and to a less extent in this country, potassium iodide has been used; also methylene blue and copper sulphate. As *x*-ray and lately radium have both been tried in the treatment of most diseases, so they have made their appearance in the treatment of actinomycosis. Some rather good results have been claimed as a result of *x*-ray treatment especially by English writers, while physicians from the Continent are equally enthusiastic over the value of radium. Probably the secret of the cure, if such we may call it, lies in the effects of time and kindness of nature, aided by local and systemic treatment of any of the above methods.

CASE REPORT.—E. S., male, age 58, born in the United States, white, farmer by occupation. Admitted to the Albany Hospital January 11, 1921, for the relief of pain and swelling on the right side of the face.

Previous history, essentially negative.

Present condition began four weeks ago as a small, but painful, "boil" located in front of the right ear. This was painted with tincture of iodine by the patient, but such treatment did not improve it. The "boil" gradually increased in size and extended till it made opening of the jaw almost impossible. Pain was terrific until one week ago, when it became less severe. For the past three weeks the patient has been unable to masticate any food at all.

Last fall the patient assisted in the threshing of grain and frequently kept a piece of hay, grass, or straw in his mouth. To the best of his knowledge he had no bad teeth or breaks in the buccal mucosa.

On admission the patient's temperature was 101°, pulse 84, respirations 24. The blood pressure was 124 systolic and 82 diastolic.

The appearance of the patient was very striking. The whole right side of his face was markedly swollen so that vision from the right eye was impossible. The jaws could be opened scarcely enough to admit the ordinary lead pencil. The right eyelids were heavy with edema, and on separating them there was observed a very marked injection of the conjunctiva. A purulent discharge ran from the corner of the eye. The brawny infiltration of the facial tissues was dusky red in color, leathery to the touch, and did not pit on pressure. There seemed to be several soft areas where necrosis had taken place. There were no palpable lymphatic glands in the region affected or elsewhere in the body. The physical examination as concerned the rest of the body was essentially negative. The white blood count was 16,000. The Wassermann reaction was negative. An examination of the urine disclosed a very positive albuminuria with the presence of many granular casts. Otherwise it was negative. An *x*-ray examination of the area involved showed absence of any involvement of the bony structures, the examination therefore ruling out osteomyelitis.

The immediate treatment consisted in the application of large hot packs at frequent intervals, with the administration of large quantities of fluids and relieving the colon by a mild cathartic.

The next day, under procain anesthesia, multiple deep incisions were made into the mass and small rubber drainage tubes were inserted. Specimens of the material obtained upon incision were immediately submitted to the laboratory for examination.

Upon the patient's return to his room hot packing was again instituted and continued throughout most of his stay in the hospital. He was given two intravenous injections of arsaphenamine, each dose being 0.4 gram at five day intervals.

The laboratory reported as follows: "The pus contains sulphur granules which, when crushed, show typical mycelial threads. Cultures of the pus show growth which resembles actinomycosis."

During the patient's stay in the hospital his eye was examined and treatment instituted by an ophthalmic surgeon to preclude the possibility of his having an extension of the process to the conjunctiva. The swelling of his face gradually decreased so that he could see quite well from the eye even on the affected side, and, for the first time in six weeks, he was able to masticate his food. He was discharged from the hospital on January 29 as improved.

Following his discharge from the hospital everything went along smoothly for about six weeks when the swelling reappeared and broke down again. It discharged for several weeks and then healed up. Since then he has had no further trouble.

The patient was last seen on August 2, 1921, at which time everything was extremely satisfactory, and except for several scars upon the side of his face and some slight thickening of the facial tissues, the appearance of his face was normal. As some eight months have expired since the infection cleared up, I believe we can consider this case as cured.

28 EAGLE STREET.
322 ORANGE STREET.

COMPLICATIONS AND SEQUELÆ OF INFLUENZA PNEUMONIA.*

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BEFORE considering the complications and sequelæ of influenza pneumonia, it might be wise to define clearly what is generally understood by pneumonia. The classical text book picture of pneumonia distinguishes two general classifications: (1) lobar pneumonia, and (2) bronchopneumonia. The former followed exposure, was accompanied by severe chill, pain in the side, rise in temperature, cough, flushed face, with delirium and continued high temperature, terminating by crisis usually from the eighth to the eleventh day. The pneumococcus was credited with causing the disease.

Bronchopneumonia was a diffuse type of the disease, involving small areas and found oftenest in children. The influenza of a decade ago appeared under the name of la grippe; it was ushered in with an acute coryza, moderately high temperature, bone and body ache, and assumed one of a number of types. The nasal type with symptoms in the nose and adnexa, the abdominal type with intestinal symptoms predominating, etc. It is hardly necessary to mention the various forms of influenza as they are sufficiently recent to be familiar to every physician here.

I mention briefly pneumonia, bronchopneumonia, and influenza, so that we may clearly distinguish between these and the late epidemic of influenza pneumonia.

A more correct definition of influenza pneumonia might be "an acute massive infection of the lung." When we use the term infection we naturally become liable for both the term "infection" and also the type of invading organism, and it is in this very particular that influenza pneumonia is separate and distinct.

Every epidemic of a dominant or new character is virulent only as long as the human host is unable to cope with it. But just as soon as man provides his own protective agency, usually by desensitization, and the fact that by successive subcultures from man to man the invading organism eventually loses its virulence, just so soon the disease ceases to be a menace to the human race.

The history of the world has repeatedly shown that large gatherings of people are invariably followed by a rapid spread of some dread disease. The carriers quickly disseminating the fresh cultures on their return to the homeland. In the recent World War, the soldiery was rapidly invaded with influenza, and the economic problem of looking after them enabled the medical profession to obtain accurate data which could have been secured in no other way. Hundreds of thousands were thus tabulated and the careful studies made give us unquestioned facts upon which we can rely.

Thus we learned that the pneumonitis was dependent for its severity upon the type of invading organism. Lucke, Wight, and Kime at Camps Zachary Taylor and Knox, after a careful study of 126 necropsies with routine cultures, found that in

*Read before the Polyclinical Society at its May meeting, 1921.

the earlier part of the epidemic the influenza bacillus was most often found. As the epidemic lengthened, secondary invaders appeared, with anatomical complications peculiar to the new organism. These were the non-hemolytic streptococcus and the pneumococcus. When more than one organism was present the disease was more virulent. Lyon confirms this at the Walter Reed General, and states that the secondary organisms are the ones which chance to be in the nasopharynx at the time of infection.

In our civilian practice *Streptococcus viridans* and *S. hemolyticus*, together with the influenza bacillus and the pneumococcus were the greatest offenders. Instead of identifying the form of pneumonia by Types I, II, III, and IV, it seems far simpler to me to use the name of the invading organism. The type method is generally used, but I fear the medical profession is using a Rockefeller trade-mark instead of a universal classification.

We are prone to consider influenza pneumonia as distinctly a disease of the lungs. This is not so. While the spectacular results are found there, we must not forget that although the hemorrhagic brunt is borne by the lungs, still hyperemia and hemorrhage are strikingly found in the brain, ears, liver, spleen, and meninges with rapid degenerative changes in the suprarenals, necrosis in the lungs, and focal infections in the head, chest, liver, and other organs.

The blood picture shows an intensity of invasion alarming in character, with a relatively poor response in polymorphonuclear leucocytes. There is a stimulation of lymphoid tissue and a myeloid intoxication.

At the Walter Reed General, Lyon[2] found in a series of fifty-six necropsies with a duration of life of 12.4 days an average leucocyte count of 5,537 with extremes of 2,675 and 11,900. Among these cases 20 per cent. showed no real pneumonic process except the classical hemorrhagic pneumonitis; Lyons also mentions findings I wish to emphasize later—namely, bronchial lymphadenitis.

The complication of early moment to the physician is that of suprarenal involvement. A question has been raised as to whether the lowered blood pressure is due to the dysfunction of the adrenals or to the toxic effect of the disease upon the heart muscle itself.

Weiss[3] discusses in a very interesting way the toxicity of pneumonic exudates; he claims there are two toxic proteins: (1) a sensitization protein, identical with pneumotoxin, and (2) a pyogenic albumose. The globulin fraction is nontoxic, but the albumin fraction is toxic, due to the digestive action of the enzymes of the exudate.

It is only when antibodies are in excessive amounts that the deleterious influences of the toxins and albumoses are neutralized. The equilibrium of mass action thus changes from febrile toxemia to to the nonfebrile, nontoxic state. This change is an abrupt one and is generally known as crisis.

We have all observed the very marked lowering in blood pressure—the systolic pressure in my own cases running from 90 to 100 mm. Cowie and Beaven[4] at Ann Arbor in a series of cases reported slightly higher than this, viz., 99 to 115 mm. They maintain that in acute infections the toxins produced call for endocrine products to combine with them in a neutralization process; that the lowered blood pressure in influenza pneumonia is endocrinal rather than cardiac.

In addition to the blood pressure, we know that the blood sugar is promptly increased by any interference with the suprarenal function. Their experiments proved to their own satisfaction that while the injection of ten to fifteen mm. of epinephrin by the intramuscular method every four hours, or four times during the day, produced a reaction causing palpitation, headache, and nervousness, with lassitude and twitching, still the benefit in increased blood pressure was questionable when compared with the above symptoms, and the epinephrin was discontinued. They conclude that the proper method of administration has not yet been found.

This leads us to a general observation relative to endocrines: It is much easier in endocrinology to build up an interchange of correlating symptoms among the various glands and convincingly prove the dysfunction of a particular gland or glands, but with the modern methods of administration it is quite another thing to repair or compensate that dysfunction by oral glandular administration.

Mackenzie's conclusions as to the effect of influenze upon the heart are summarized under three headings: (1) the effect due to the rise in temperature, (2) the effect of the toxins produced, and (3) the direct invasion of the heart. Inasmuch as the toxins are limited to their production and neutralization, the heart has only to sustain this burden for a short period, viz., ten to fourteen days. The invasion of heart muscle produces cardiac irregularities with both tachycardia and bradycardia, but Mackenzie himself expresses surprise that hearts severely infected so thoroughly recover with no bad after effects. He thinks the heart suffers more from the indirect insult to the central nervous system. This would seem to be borne out by the surprisingly few cases referred to us for postinfluenzal heart conditions.

Another question which has frequently confronted the medical profession is, What is the effect of an attack of influenza upon the tuberculous subject? More interest still centers upon the effect upon the pretuberculous type whose latent possibilities are always a source of worry to the family physician.

Many of these cases showed early and positive mediastinal involvement. Our civilian work dealt largely with the *Streptococcus viridans*, and this particular organism seemed to have a predilection for peribronchial tissue and glands. These were the cases which on physical examination showed apparently unresolved areas posteriorly at the roots of the lungs. The voice sounds were pronounced here and out of all proportion to the general condition of the patient. This physical picture continued for weeks after the patients had recovered and seemed in the usual health. They did not complain of the lungs, but rather of a lack of "pep" and early fatigue.

It is interesting in this connection to note the report of Stivelman[5] of the Montefiore Country Home Sanitorium at Bedford Hills—his conclusions being as follows: Tuberculous and nontuberculous

subjects seem to have been equally affected, and were susceptible alike, the percentage in each case being 24 per cent. Early and advanced cases were equally affected. Pneumonic consolidation occurred as frequently in the nontuberculous as in the tuberculous. The mortality was 11.4 per cent. Careful observation for four months and reexamination showed but two patients who were the worse for the experience.

The points which I wish to emphasize particularly in this paper are that influenza pneumonia is a massive toxic invasion of short duration—leaving relatively few scars of a permanent character upon those who recover, in proportion to the severity of the invasion.

That we should be careful in our prognosis in the post influenzal stage when the physical signs and the *x*-ray pictures of the chest may suggest symptoms of consolidation. These are in reality often mediastinal glands, and we should not commit ourselves to any diagnosis of tuberculosis until time and a careful observation have justified a more serious conclusion.

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3 WEST EIGHTY-FIRST STREET.

CANCER DEATH RATE IN NEW YORK CITY DURING 1921.

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THE continued and ever-increasing and alarming rise in the death rate from cancer in New York City should attract the serious attention of the medical profession, that it may seek the reason for it and endeavor to overcome the difficulty, as would be the case with any other malady. Simply to urge greater vigor and more diligent laboratory research on rats, mice, and guineapigs, and to inspire a more active employment of surgery, *x*-ray, and radium, seem only to raise the death rate from cancer. Sir James Paget once said, "Assuming that the patient survives the risks and the effects of the operation, I venture to say that the number of cases in which the disease does not return is not more than one in five hundred." Is it not time for all of us to consider whether our conception of the nature and treatment of cancer is correct or not?

Another year has fulfilled the predictions of former studies,* that at the present rate of increase the deaths from cancer would, in some years, exceed those from tuberculosis; but no one could imagine that this would occur so soon as it has, nor that the excess of the deaths from the former over the latter disease, would be so very great, as it has been during the year just passed.

According to the Weekly Bulletins of the New York City Board of Health the total recorded deaths from cancer in 1921 were 5656 (males 2534, females 3122) against 5361 the preceeding year, an increase of 295 or a little over five and one-half per cent., whereas the yearly increase throughout the United States has never been over two to three per cent., sometimes much less. The total mortality from all causes in New York City, during the last year, as compared to that of the preceding year, fell twelve per cent., against an increase of five and one-half per cent, from cancer, and a fall of sixteen and six-tenths per cent, in the death rate from tuberculosis.

Those who have tried to argue against the demonstrated increase in the mortality from cancer have always claimed that it was not actual, but that the error arose from: (1) Increasing population, (2) increasing average longevity, into the cancer age, and (3) improved diagnosis and more careful death certification. Figures show the unreasonableness of all these. Thus, the population of New York City has not increased five and one-half per cent. since last year, also the general death rate and that from tuberculosis have fallen greatly, and the longevity of life extending to the cancer age has certainly not increased five and one-half per cent. in the year. Nor, thirdly, could the diagnosis of cancer have improved so greatly in the year; while I have been repeatedly told by undertakers that the figures given by the Board of Health are certainly far too low, as they personally know of many instances of death from cancer in which the name of the disease was withheld for family or other reasons.

The average weekly number of cancer deaths was 108.6 persons, or 15.5 per day, and the greatest number in a single week was in that ending Oct. 29, namely 130, or 18.5 a day; the lowest number in any one week was 88, or about 12.5 persons a day. There were only 15 weeks in which there were less than 100 deaths from cancer.

This outlook is more discouraging when we compare it with the death rate of tuberculosis during the last year. Against the 5656 deaths from cancer, there were only 5225 deaths from tuberculosis, or an excess of 431 from cancer; while, as already stated, the tuberculosis death rate has fallen 16.6 per cent.

In the United States Registration area, as is learned from a special report from Washington, the deaths from cancer had risen in the year 1920 from 80.5 to 83.4 persons per 100,000. The rise in the cancer death rate is all the more startling when we examine the Special Cancer Report issued by the United States in 1914, which shows that the population from 1900, in the enlarged registration area, had a little more than doubled, whereas the number of cancer deaths had almost tripled in the same time.

Tuberculosis was felt a while ago really to threaten the existence of nations, but with well directed medical care the mortality has fallen steadily 43 per cent., and it is no longer the terror it once was, to those who can secure proper treatment. Syphilis was once called the great black plague, and a few hundred years ago, swept, mainly by extragenital infection, through whole villages in Europe; but now is well under control by properly regulated medical treatment.

*See MEDICAL RECORD, March 2, 1918; January 18, 1919; March 20, 1920; January 29, 1921.

But cancer, the great red plague, seems to be still pursuing its mad career, and carrying off 80,000 persons in the United States each year (consequently with 80,000 new cases), with an acknowledged mortality of about 90 per cent. of those once affected; and many are asking how its steady advance can be averted and its prevalence diminished. The idea or theory of the local nature of the lesions called cancer has been shown to be untenable, and the evidences are steadily increasing of a systemic or constitutional nature of carcinosis, of which the local lesions, commonly called cancer, are only the local manifestations or products, as are the late lesions of tuberculosis, syphilis, arteriosclerosis, rachitis, apoplexy, etc. Is it not high time for the general medical profession to try, at least, what the careful intelligent and prolonged application of medical acumen can accomplish on a large scale, to diminish the incidence and mortality of cancer, from which it is estimated that there are 300,000 sufferers in the United States to-day?

10 East Sixty-first Street.

A CASE OF SEPTICOPYEMIA WITH RECOVERY.

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DURING a portion of the writer's hospital service he had charge of a case of puerperal septicopyemia and he keenly felt his responsibility. Neither was the burden that he bore lightened by the discovery that a single agar blood-test plate revealed twenty-six colonies of active *Streptococcus hemolyticus;* nor was it any present help in time of trouble when, in consequence of that showing, the visiting attendants in their wisdom simply quit, surrendered hope, abandoned effort, and unanimously predicted a fatal issue. In which course they were sustained by the authors of former days who considered the condition "almost invariably fatal." The authorities of to-day admit that "mild cases, if very mild, sometimes, though rarely, recover."

All of which leads one to believe that when a medical man is shown the conclusive evidences of an acute bacteriemia with a couple of dozen of colonies of *Streptococcus hemolyticus* on each plate, then that man becomes eloquently emphatic upon the simple text that "nothing can be done for the patient." In other words, the dread of puerperal septicopyemia is so great that the mere exhibition of adverse showings upon a Petri dish suffices to paralyze a physician's every thought-effort at resistance, in advance of the initiation of any combative impulse that might otherwise be directed against the disease. At any rate, in this particular instance, the outcome of the writers' appeals for help among the members of the visiting staff was an instruction that the case was to be made a special one and was to be put in the care of Dr. Douglas H. Stewart, to whom one was to look for advice and counsel while making what was considered to be either a perfectly futile sort of fight, or an idle attempt to save a doomed patient. One of the Doctor's first orders was that the world of bactericides and the wealth of germicides were to be forgotten and that the employment of Catalyzers and catalysis was to be carefully studied. Because, while it might appear to be both natural and rational to suppose that some bactericide would prove available in arresting a bacteriemia, yet clinical and laboratory experience united in demonstrating this supposition to be a fallacy, when the actual conditions within the blood-vessels were taken into account.

There are eighteen cases scattered through the literature in which a complete recovery was brought about. In all a dependence was made upon a catalyzer, and the two catalyzers that were at hand were colloid silver and bicarbonate of sodium. These have been used intravenously; but this patient was altogether too ill to withstand the severe reaction that follows that method. The framework, upon which the treatment soon to be described was hung, was derived from Wolf's article in the *Medizinische Wochenschrift,* 1913, No. 20, page 944, and from Vorschütz' brochure in the *Zentralblatt für Chirurgie,* 1912, No. 50, page 1719. These treat of silver and sodium respectively. The action of these preparations is due to their powers of stimulating leucocytosis and to their catalytic properties, so that while there may be little or no direct influence upon the blood-borne bacteria, yet an efficient action is indirectly induced through a hyperleucocytosis, which is easily demonstrated under the microscope. At the same time noxious

bacterial products are detoxified, eliminated, and altogether catalyzed. In the case under consideration the bacteria would disappear; but they would return, though always in smaller numbers, so that it was very evident that they were working in an environment that the treatment was rendering distinctly unfavorable.

The amount of space necessary to set forth the temperature, pulse, and respiration chart would be great and perhaps no useful end would be served, because the whole matter might be summarized in the advice to the reader, when in a similar difficulty, to neglect the chart and to get a pathologist to count the colonies of bacteria that show on the Petri dish. Then, as it was in the case herein reported, if twenty-six colonies become fourteen and nine and none, even though a further test reveal nine colonies by way of return, favorable progress may be foretold, even before the chart manifests any evidence in the matter. For the chart will manifest a disturbance until both bacteria and toxins are eliminated. A schematic figure, that occurs and recurs when things are going well for a septicopyemia patient, and when the fight is being carried into the invader's territory by a powerful catalytic agent that is producing an environment against which the bacteria can no more act, but become any army deprived of ammunition and supplies, is this:—Suppose the maximum temperature be 105°, the minimum 99°, with the maximum pulse

130 and its minimum 100. The respirations may be anything from 24 to 34.

At figures 1-2 the blood shows a leucocytosis and the silver-soda injection is given. At 3 it will be found that the cell wall of the leucocytes has been destroyed, that there is a leucopenia, but the antitoxin contents of those ex-leucocytes have been dumped into the blood-stream, therefore the chart looks *worse*, the patient looks *better*, and the colonies of bacteria are few or absent. At 4 there is a leucocytosis again, and at 5 the stimulated overproduction of leucocytes produces a hyperleucocytosis. Again and again did it occur in this case that some interested or curious physician would look at the chart, shake his head sadly and then would look at the patient, with the result that words to the effect that the patient "looked so very good," were almost forced from him by the difference between what he did see and what the chart had led him to think that he was going to see. One gentleman remarked, "If this woman is as sick as the chart says she is, she ought to have holes under her eyes." She did not have those "holes" two days after the treatment was established, though the shadows had been quite dark enough before that treatment was begun. In short, after the treatment was well under way, the patient promptly ceased to look sick, while the chart started off on a series akin to the schematic figure. The patient might have been out of bed days before she was, if Dr. Stewart had not insisted that patients of the sort had lost their lives through a masked endocarditis. Therefore his orders were to keep the patient recumbent, though she was allowed to roll from side to side. A diagnostician was called from the medical side of the hospital and after careful examination and tests (blood-pressure, etc.) upheld Dr. Stewart in every detail. In spite of the hemolysis and the fact that the hemoglobin went to 32 per cent, the patient left the hospital with this blood count (August 26); erythrocytes 3,160,000, total leucocytes 9800, hemoglobin 65 per cent. Color index normal. Urine normal. Physical examination of patient negative. Blood pressure, sitting, 110.

August 30—Discharged, cured.

September 27—Condition excellent.

October 28—Continued improvement.

It is evident that a full and carefully made report of one severe case of puerperal septicopyemia, whose every detail, whether laboratory or clinical was noted, and whose every phase was recorded, must have a certain definite value. At least the writer feels that there was a time, not so very remote, when he would have gladly welcomed exactly such a history,—because it would have been a brilliant light where all was dark before. An abstract of such a case history is here given, with the understanding that the writer was in attendance, constantly, during the time the patient was in the Knickerbocker Hospital.

Mrs. C., a well developed and well nourished white female, thirty-two years of age, was admitted on June 27, 1921, giving a history of an incomplete abortion that occurred on June 20. Her mother had died of cancer of the uterus and the patient herself had had typhoid, the ordinary diseases of childhood, malaria, and dysmenorrhea. She had had two full term pregnancies and two miscarriages, having been married at the age of twenty. She entered the hospital at 10.30 P. M., with a profuse uterine hemorrhage, which was met with the usual measures, with small success. Consequently on the following day (June 28) she was curetted by one of the attending surgeons. She remained in the hospital until July 5, when she left against advice, though she was apparently in good condition On July 10 she returned with temperature 103°, pulse 120, respirations 24, and gave a history of a chill the previous day. The urine showed a faint trace of albumin and the blood count showed leucocytes 17,000. The hemoglobin was 60 per cent. Blood culture on agar plates showed small hemolytic colonies. Broth cultures showed numerous chains of *Streptococcus hemolyticus*. Uterine scrapings showed a practically pure culture of the streptococcus. The Wassermann and fixation tests for gonococci were negative. All sorts of treatments were used until the case was placed in Dr. Stewart's care on July 16, 1921, at which time the record was: temperature 104°, pulse 108, respirations 24, and the patient looked very sick. She had twenty-six colonies of bacteria to the plate. The next day she had fourteen colonies, and four days later she had none (July 21). July 28 showed nine colonies, after which there were none found. The pulse averaged 108 and the respirations 24 for the first ten days, while the temperatures ran from 98.5° to 105°. Then for seven days that temperature ranged from 98.5° to 102°, at the end of which time it ran up to 103°, pulse 110, respirations 20. After this the temperature varied from 99° to 101° for thirteen days, or until August 15, on which day it went to normal and there remained until the patient was discharged on August 30, 1921. The maximum pulse was 127 and the minimum 96 during the week from July 16 to July 23, and presented all qualities from bad to indifferent; but a statement of averages will suffice.

Metastases made their appearance and followed the course of the blood flow. The first one followed the channel of the left subclavian artery and appeared in the neighborhood of the left shoulder, while the second one, traveling by the same route, appeared at the left elbow, somewhat later in point of time. These two gave every promise of the usual and future severity. The third one appeared at the right shoulder, but was milder in onset and type than were its predecessors, and the fourth one was symptomatically but a pain and tenderness in the neighborhood of the fourth lumbar vertebra, practically corresponding to what might be expected from a sore spot, or from a damage to the bifurcation of the abdominal aorta. In disappearance the aforesaid metastases did not quite reverse the order of arrival, because the left elbow recovered last. The order of onset might be termed 1, 2, 3, 4; but that of cessation was 4, 3, 1, 2. In other words, there were four direct hematogenous metastases with a reasonable certainty of further and future lymphogenous transfer and transportation, had these not been forestalled by the arrest and nullification of the activities of the streptococcus, together with the detoxication and the elimination of its toxines from the blood stream, in which last their presence and their absence were both demonstrated by the laboratory. Incidentally a question arose as to how low the erythrocyte count will fall in a bacteriemia with a hemoglobin of about 30 per cent. The answer of the laboratory is that it will go to 1,000,000 or about one-quarter of the patient's normal.

The local treatment that proved best when directed against the aforesaid metastases was an application of an inch-thick cataplasmoid layer of bicarbonate of soda mud. This was covered with gauze, held in place by proper bandages, and the whole was kept wet by soaking an occasional tablespoonful of Wright's solution through the dressing. This seemed to work very well. It was not used once or twice; but was kept on the joint until pain and swelling disappeared. Which disappearance came to pass in such a reasonable time as to win the approval of physicians and patient.

To aid elimination, one ounce an hour of liquor potassii citratis, well diluted, was given by the mouth. The ordinary stimulants were employed when indicated. But the rectal administration was the all-important measure. At 8 A. M. and 8 P. M. daily the rectum was carefully washed out with warm physiological salt so-

lution. This washing was followed by a two quart enema of a 5 per cent. sodium bicarbonate solution. What amount of this was retained was absorbed and acted as a catalyzer, what amount ran away into the pan simply washed away the mucus that would have prevented the action of the silver. Finally an absorbable retainable solution of 5 per cent. silver colloid was introduced, to the amount of four ounces. This was changed in forty-eight hours to a 6 per cent. strength, which proved entirely satisfactory, and therefore was employed twice daily for ten days, then once daily for a week. After this time it was used on Mondays and Fridays until August 15, when there was no further need for its employment.

The only two symptoms that Dr. Stewart seemed to await with anxiety were the disappearance of the bacteria from the broth cultures and the appearance of an appetite that would "surprise the staff." He surely obtained both. The amount of food that the patient ate was a standing joke to nurses and all concerned. Call it *incredible*, for lack of a better term. But its interest to the writer lay in the fact, that no matter where the temperature stood nor what the pulse was doing, if there were no bacteria in the blood then that appetite was extraordinary. Yet the digestive powers seemed to keep pace with it, and they proved fully equal to all demands. Needless to say the food was plain, nutritious, and carefully selected.

January 20, 1922.—Patient states that she never in her life felt so well, slept so well, weighed so much, or had such a stock of untiring energy.

In conclusion it may not be amiss to quote from Chemical Pathology, "Leucocytes contain substances which are strongly bactericidal, are independent of the action of the blood serum, and which have been called endolysins." Again, "Within the cell the enzymes exist in an inactive condition or form, the *zymogen*. The activation appears to take place only after they have been discharged from the cell." Very well, then the history here set forth may be termed the record of an attempt at bombarding hemolytic streptococci in the blood-vessels, by discharging endolysins at them, with a successful issue to the battle.

EXOPHTHALMIC GOITER AND DIGITALIS.

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THE reason for failure of the average internist's efforts to obtain recovery in exophthalmic goiter is not the stubbornness of the disease to the effects of remedial measures, far less the incurability of the affection. The prognosis in the average case of Graves' disease is far brighter than that in the average case of pulmonary tuberculosis, and recovery is far more conclusive. The difficulty lies not in the disease, but with the medical attendant. Graves' disease, so widespread in etiology, so generalized in symptomatology, so variegated in its clinical picture, requires likewise a régime of therapeutic measures so discriminating in nature that the patient cannot help but respond favorably. The etiology, the symptomatology, the entire clinical picture, and the physical and mental peculiarities in each patient are distinctly different from those observed in all other patients. It is these numerous differences that must be ferreted out, evaluated, and employed as a basis for individual therapeutic approach. The success or failure of the internist's *pretherapeutic* process of individualization determines the success or failure of even a most skillful therapeutic approach. Individualization is necessarily the keynote in the management of Graves' disease, and briefly stated, embraces the matter of a penetrating etiological investigation, precision in observation of subjective and objective symptomatology, a humane interest in psychology and applied psychotherapy, a study and correction of the patient's environments, an enthusiastic attitude toward the generally neglected subject of practical dietetics, and, finally, the scientific administration of drugs. With regard to drugs, it must be emphasized that it is as important to know what *not* to give as to know what to give. We might discuss at length drugs contraindicated in Graves' disease; we might go into detail on the occasional virtue but usual harm wrought by the administration of thyroid extract, the opiates, the iodides, and other substances. The drug least dwelt upon by most writers, and most often erroneously employed in this disease, is digitalis, and I beg leave briefly to present my views on this topic.

The constancy of heart hurry in the symptomatology and diagnosis of Graves' disease has led (often primarily) to the use of remedies destined to reduce the heart rate. From the use of "heart stimulants"* as the mainstay in the treatment of the disease, to their inclusion merely as a nonessential constituent of a broad régime of dietetic, hygienic, medicinal, psychotherapeutic, and other measures, many gradations of importance have been assigned to remedies administered for the purpose of stabilizing the circulatory system. Of all the remedies falling under this heading, digitalis, rightfully and otherwise, occupies first place.

Digitalis, employed in Graves' disease, may serve somewhat to regulate a delirious heart or a heart in a state of flutter or fibrillation, but due caution must be observed lest the apparent good be overbalanced by harm. Digitalis may help, more often hinder, and at times render impossible, recovery from this disease. Sufferers from Graves' disease, singularly tolerant to large doses of quinine and its salts, are singularly intolerant to digitalis and its products.

If we recall that the tachycardia of Graves' disease is constant, even during sleep, and that the heart rate is not influenced by digitalis even in massive doses, we are at once struck with the persistent stubbornness of the heart "drive" and the apparent antagonism of the driving agencies—the neuroendocrine *vis-a-tergo* — to this drug. The same might be remarked of digitalis in paroxysmal tachycardia. Administered during the active stage of Graves' disease, when the basal metabolism is high or rising, digitalis is not only useless, but is capable of increasing the subjective and objective heart symptoms. Moreover, the digestive difficulties are increased. In this relation another vicious circle is added to those already characterizing this affection, viz., the sensitiveness of the gastric mucosa is increased by contact with digitalis, resulting in flatulence, nausea, and vomiting, reducing the intake of food and the weight of the patient, *thus aggravating the entire syndrome and increasing rather than reducing the heart frequency.* This, in turn, increases the intolerance to digitalis.

*I believe the term "vascular stabilizer" to be more consistent with the physiological conception implied by "heart stimulant."

On the other hand, digitalis may be employed advantageously during the passive stage of Graves' disease. By the "passive stage" is meant that period during the course of the affection when spontaneously or as the result of treatment, the basal metabolism is less than + 15, the patient is gaining rather than losing weight, and there is subjective and objective improvement. Ordinarily, when, after several months of properly applied nonsurgical management of a given patient, there is a restoration of weight, marked improvement in or disappearance of the thyroid swelling and of exophthalmos, and recovery of the central and peripheral nervous symptoms—in a word, when the patient thinks, acts, and appears normal, the heart rate, too, is returned to normal. Occasionally, however, the heart rate is still 90 or above, its restoration seeming to lag for an indefinite time behind the general improvement or recovery elsewhere. This is by no means an indication of failure in treatment; it is seen in tardy convalescence from other illnesses, notably influenza, typhoid fever, and pneumonia. The myocardium is still in a state of disturbed function from the persistent action of former toxins; its nervous mechanism is still in a state of disequilibrium. Possibly the socalled "morbid habit of tissues" plays its part; if a whole individual can acquire a bad habit, surely a part may also acquire a bad habit necessitating correction—and the most efficient corrective here, at this time, is digitalis. To repeat, it is when the patient seems entirely recovered, when everything appears normal but the heart rate, that digitalis is indicated and is efficient as a restorer of vascular stability. It is then that the patient not only tolerates the drug, but responds promptly to its action.

The digitalis having accomplished its purpose within three or four weeks, its service seems no longer to be required, and it is withdrawn. In the majority of patients, the heart rate will now remain normal. Occasionally, the heart rate will soon again extend beyond normal, though not to the previous figure. Digitalis is again administered for a like period, after which it may be withdrawn permanently. In rare instances, it may be necessary to prescribe the drug during three or four such periods with intervals of a week or two, depending upon individual circumstances, especially the previous severity and duration of the disease and the damage it has wrought upon the myocardium and its regulating mechanism.

When, in the presence of the indications above mentioned, digitalis is deemed necessary, a reliable preparation should be selected. I have found a fresh, well standardized extract of the leaves serviceable, in that it can be combined in capsule with other ingredients then employed. The dose varies with the age and prevailing circumstances of the individual. I find that ¼ to ½ grain t.i.d. is quite sufficient in the average patient. Digitora (Upjohn) seems to possess advantages over the ordinary stock extract and may be administered in doses of one grain t.i.d. If, for some reason, a liquid preparation of digitalis is desired, digalen, minims five to ten t.i.d., well diluted, will serve the purpose. With regard to dosage, it is well to observe that under no circumstances should we administer a quantity of the drug corresponding to an overdosage. It is far preferable to give too small a dose and await results, than a so-called physiological dose in which results seem prompt, but in which there is danger of deranging the recently recovered but still delicately balanced circulatory and gastrointestinal systems.

Conclusions.—1. In occasional instances, in the presence of auricular fibrillation or flutter, the careful intermittent administration of digitalis may serve to *regulate the action* but not to *lessen the frequency* of the heart rate during the active stage of Graves' disease.

2. In the great majority of patients, digitalis is useless in the tachycardia during the active stage of Graves' disease.

3. The drug may indeed aggravate the syndrome during the active stage of the disease.

4. Digitalis may be employed to advantage in patients who, though recovery is at hand, still present a degree of tachycardia.

5. The digitalis must be a reliable preparation and should be administered by one thoroughly familiar with this type of patient.

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MOONSHINE WHISKEY PSYCHOSIS.

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We have, so far, no way to ascertain how moonshine whiskey acts on normal people. As a rule, all the people who are at present using moonshine have used alcohol before. However, the users of moonshine do not develop the psychosis common to chronic alcoholics, namely, delirium tremens, alcoholic hallucinosis, and alcoholic paranoid, but the most common psychosis developed in those who are indulging in moonshine are stuporous states in which the patient becomes more or less unconscious and from which he either dies or recovers, and when he does recover he does not remember anything that happened to him during the time he was unconscious. He either did not experience any form of hallucinosis, or when he did he does not remember any. He may perform almost any act while under the influence of moonshine, but after he recovers he remembers nothing that he has done. This resembles what we call pathological intoxication, or epilepsy or its equivalent. When they do develop a hallucinosis, it is mostly of the visual type instead of the auditory in the chronic alcoholics. Usually they see strange people with weapons who are trying to harm them, and as a rule they have no amnesia differing from that of delirium tremens in the chronic alcoholics, where they see mostly animals and have amnesia. This goes to prove, in part at least, that the form of psychosis a person develops depends more on the toxins circulating in his body than on inherited tendencies. Apparently different toxins attack different nerve cells. While the nonvolatile alcohol in bonded whiskey seems to intoxicate the nerve cell in the special centers, and we have in the majority of cases different forms of hallucinosis, the volatile alcohols in moonshine seem to attack the nerve cells in the associated centers, and in the majority of the moonshine cases we have all

degrees of unconsciousness, with impairment of judgment. For illustration, I will cite a few cases that have been admitted to the Chicago State Hospital in the past few years:

CASE I.—Frank H., admitted to the Chicago State Hospital September 15, 1921. History given by a son-in-law as follows: Patient was a heavy drinker until the country went dry, but had never shown any mental symptoms. From that time he did not drink until a couple of weeks before he was admitted, when he met a friend who gave him moonshine. He got drunk that day, had a quarrel with his wife and left the house, returning in the evening when no one was at home. He went to the basement, set fire to his house and then left. He went out to the Forest Preserve and cut his left wrist at 9 o'clock that evening. Neighbors found him there and took him to the Chicago Heights Hospital. When he went home his family had him taken to the Psychopathic Hospital. The Psychopathic Hospital record states as follows: Physical: senile changes; recent incision on left wrist. Mental: good response to mental tests; patient is quiet, cooperative and in good contact; has swings of mood. Says he noticed his wife was in love with another many. She goes to the window to see a neighbor pass. He became drunk and cut his wrist with a razor. When he was admitted to the Chicago State Hospital, he was clear and oriented in all spheres. He stated he was 65 years old, born in Germany in 1856. Has been in the United States since 1877. He is a citizen. Is an iron moulder by trade. Says that on August 15, a neighbor gave him some moonshine, and in an hour later he did not know what happened to him until he found himself at midnight in the Chicago Heights Hospital. Then he found out that he had cut his left wrist, but he does not remember having done it. He was in the Chicago Heights Hospital two weeks and four days. When he left there he stayed with a married daughter. On Labor Day he went to his home and when his people saw him they became frightened and locked the doors and would not let him in. They sent for the police and had him taken to the Psychopathic Hospital. His general knowledge was good and he did the ordinary tests correctly. Physically, with the exception of an infected wound on the left wrist, and a few senile changes, the examination was practically negative. The patient remained in the hospital until November 11, 1921, when he was paroled to his son in good physical and mental condition. In fact, he had shown no mental symptoms during his stay in the Chicago State Hospital.

CASE II.—Joseph P., admitted to the Chicago State Hospital October 22, 1921. History given by a friend as follows: Patient is 39 years old. Born in Poland; in the United States 15 years. For some time patient had been talking queerly; would tell imaginary people to open the door. At night he was afraid, and could not sleep. Thought he saw a lot of people after him. The psychopathic record states: Physical, negative. Mental: Orientation, memory, and judgment, good; retention, general information, and calculation poor. Patient is quiet and cooperative, but in poor contact. Emotional attitude fairly adequate. Answers questions to the point. Saw large black dogs and black people with sticks jumping on him. Has been out of work for 9 months. The patient is a chronic alcoholic. When admitted to the Chicago State Hospital, he was clear and oriented. He told the examiner that he went to the County Hospital to be treated for pain under the eyes, and from there he was sent to the Psychopathic Hospital. He stated that while he was at home he saw black people and black dogs, but he was not especially frightened by them. He denied ever hearing voices. Admitted having drunk home brew whiskey. His general knowledge was in keeping with his station, and his physical and laboratory examinations were negative. Patient got along well while at the Chicago State Hospital, took an interest in the hospital activities, and behaved in a normal manner.

CASE III.—James R. B., admitted to the Chicago State Hospital October 20, 1921. American, white, 47 years old. History as given by his wife states that the patient worked regularly until three weeks before he was committed, when he began to drink moonshine. He had been a periodical drinker for years, but it never lasted long. This time he drank so much that he became paralyzed. He saw imaginary things, and became helpless and his wife was not able to care for him, so had him committed. The records from the Psychopathic Hospital are as follows: Physical: Pupils rather sluggish; spinal fluid negative. Mental: Patient mumbles to himself, mutters incoherently, repeats 1189 to all questions; appears deteriorated; speech is slurring. When admitted to the Chicago State Hospital he was a stretcher case. He was helpless, and had to be assisted on the ward; was confused and could give no details about himself, his speech was thick and slurring, suggestive of paresis; he was restless and talkative. He gradually improved, and by the time the mental examination was made, he was well oriented, although his speech was still thick and slurring. He told the examiner that he began to drink 20 years ago, and became a periodical drinker 8 years ago, but had never before seen or heard things. Two or three weeks before he was committed he drank moonshine with friends. He did not drink much, but it must have been very poisonous, as he lost his senses. He does not remember much that took place for several weeks afterward until a few days ago. States during that time he saw many animals that scared him for the time being. He also heard some voices, but they were not of importance. He is not able to explain what the voices were, nor where they came from. For several weeks his mind was a blank. His general knowledge was good, and his physical and laboratory examinations were entirely negative. This patient improved constantly, and was paroled to his wife on November 14 in good physical and mental condition.

CASE IV.—Joseph P., admitted to the Chicago State Hospital October 20, 1921. Patient is a Lithuanian, 44 years old; in the United States 24 years. The history as given by a friend is as follows: Patient worked regularly until a week before he was committed, when he began to drink moonshine. The friend knew nothing that took place after that until he was notified that the patient was in the Psychopathic Hospital. When he visited the patient at the Psychopathic, the patient told him that the doctors there were trying to electrocute him, and that he felt electricity all over his body. The records from the Psychopathic state: Physical: Pupils sluggish. Mental: Orientation and memory fair; calculation, general information, retention and judgment poor; quiet, cooperative, but indifferent; is in poor contact; feels electricity all over his body; hears voices. This has been going on for months. When admitted to the Chicago State Hospital he was clear and oriented. He told the examiner that he worked steadily until the Monday before he was committed. He had been hearing voices since before Christmas, but they did not bother him enough to keep him from working. Every time he turned his head, they said in his own language that he was not going to live long; that he must die; that they wanted his money. He further stated that the voice he heard was the voice of the doctor who had been doctoring him. The doctor wanted his money, and bothered him so much that he once gave him two hundred dollars. The doctor put electricity over his body and it caused him great pain in his head and feet. He stated that he had been drinking moonshine since Christmas. When he first heard the voice, it frightened him, but now he had become accustomed to it. His general knowledge was in keeping with his station, and his physical and laboratory examinations were negative. This patient is improving gradually.

CASE V.—David S., admitted to the Chicago State Hospital October 27, 1921. American, white, 56 years of age. There was very little history in this case, as the man had lived away from his family for years owing to his drinking habits, as he had been a heavy drinker. The records from the Psychopathic are as follows: Physical: Arteriosclerosis; senile changes. Mental: Patient is disoriented, is out of contact, indifferent, and answers questions slowly. Patient is deteriorated. When admitted to the Chicago State Hospital he was a stretcher case and in a very weak physical condition. The heart sounds were feeble and he could not even stand. Had a large pressure sore on the back. He was in a stuporous condition, and no information could be gotten from him. After a few days he improved sufficiently to give an account of himself.

At that time it was found that he was only partially oriented. He gave his name correctly, called the place the County Hospital, knew the year was 1921 and the month November, but could not give the date nor the day of the week. He could not state exactly how long he had been here, nor how he came. Said he came here to get cured of the weak spells. He was walking to Chicago, fell on the sidewalk and an ambulance brought him out here. States that he has been drinking since he was 22 years of age. Thirteen years ago he was drunk and at that time he saw and heard different things, but during this present attack he does not remember having seen and heard things. States he stopped drinking for about a year after prohibition, but started to drink again, and drank moonshine. His personal identification was well given, but he was very deficient in general knowledge. He could not name the President or Governor, or the Mayor of Chicago. He named five of the largest cities in the United States and three of the Great Lakes. He named the Spanish-American, the Mexican, and the last war as the wars this country has had. He knew that there were other countries in the last war, but could not name them. He knew that George Washington had been president but he did not know that he was the first president. Abraham Lincoln, he stated was the man who cleared up the West. He knew the days in the week and months in the year. His calculations were also deficient. This patient improved physically. His pressure sore healed and he became stronger. He is able to be up, and at present is even helping care for other patients. Mentally, he shows apathy, and when not occupied he will sit down in a chair by himself; will not mingle with other patients; does not talk spontaneously, but answers when spoken to; is pleasant and agreeable and has developed a fabrication of memory. He tells what he did the day before, how he visited his brother, and how he was walking in many other places while he was not out of the ward. However, he is steadily improving, both physically and mentally.

PROGNOSIS IN INFANCY AND CHILDHOOD.

By JOSEPH H. MARCUS, M.D.,

ATLANTIC CITY, N. J.

PEDIATRIST TO THE BAMBERGER HOME; PEDIATRIST TO THE JEWISH SEASIDE HOME AND ATLANTIC CITY HOSPITAL.

THE conspicuous feature in the prognosis of disease of early life is the age of the patient, and so we may stipulate without much reservation, that "the younger the patient, the worse is the prognosis in all the diseases of childhood." It is for this undisputed fact that the mortality in the first year of life is so high, and that it shows a relative decrease throughout the remaining years of childhood. In the second year of life, when the child commences to crawl about and creep, and walk, and when its diet embraces other foods, in addition to milk, the pathogenesis will be seen to depend, not so much on the internal, as on the external influences and environment. The scope of this monograph is not intended to embrace that much discussed question of infant mortality, nor to consider the different causes of death at the different ages, in a detailed narrative. Briefly, the causes of the high mortality of infancy may be stated as follows: (*a*) The feeble resistance of the infantile organism to the external causes of disease, demonstrated not only against those external causes which have a marked tendency to produce disturbance of function, but also against infections. (*b*) The frail resistance of the undeveloped organism may be increased both by inherited conditions and by congenital faults of development. (*c*) A wide and prevailing ignorance as to the hygienic requisites of the young and tender organism and the necessary considerations that are essential to its proper growth and future health.

In the first year of life, gastrointestinal disorders hold first place as the cause of death; acute respiratory infections come second; congenital malnutrition third; other acute infections is the fourth factor in importance. In the second year of life, the gastrointestinal conditions still hold a position of primary importance in the causation of death. It is rather difficult to draw a sharp line of demarcation between acute infections of the respiratory tract and the acute contagious diseases, because death so often occurs when the pulmonary infection has become a complication of the acute contagious disease. Measles, diphtheria and pertussis appear to hold second place. Acute tuberculosis and tuberculous meningitis certainly ought to receive an important statistical consideration, but the present available figures appear to be rather too low. After the second year, the acute infections rank ahead of all other conditions.

During the fifth and sixth years of life, the peculiarities of children more closely resemble those of the adult. Nervous disorders appear as a result of mental strain; scoliosis, due to faulty position; myopia and other eye disorders, as a result of reading and writing to an excess or in a faulty light. The increased social intercourse at this time presents a favorable opportunity for the transmission of the infectious diseases, and certain nervous hysterical diseases. To be sure, the proper predisposition must be present.

In considering the phase of prognosis, it must not be forgotten that, in general, infants and young children succumb easily to acute infections and, in addition, they demonstrate more markedly the effects of chronic functional disturbance. On the other hand, there are numerous conditions, accompanied by organic lesions in early life, that show a remarkable possibility of recovery as compared to adult life, and which is due to the rapid metabolism of childhood. So it is quite possible for many conditions of an organic nature to disappear with the passing of time, or as the expression is to-day, "to be outgrown," provided that the patient can be placed under the proper hygienic surroundings, so that the general nutrition can be carried to the highest point. Owing to the certain distinctiveness of the anatomy of early life, there are a number of infectious diseases which run a less severe course in the infant than in the adult. The course of each disease depends on many factors, the important phases being the lack of development and peculiarities of functional resistance, which form the unknown factor in the giving of a prognosis. In the adult this can be compared to the effects of all abuses, such as of alcohol, and the various other forms of wear and tear of the adult human organism. The prognosis of any diseased condition can be estimated only from an understanding of the characteristics of the particular disease in early life, and from an estimate of the constitutional distinctiveness of the individual patient. In chronic functional disturbances, the prognosis largely depends upon the length of time which the disease has existed and the degree of malnutrition and the lowered resistance which are present. In those with apparently robust constitutions and normal

development, the prognosis in those acute diseases which do not tend inevitably to a fatal termination is fairly good. In children with poor constitutional resistance and development the prognosis is comparatively bad. Tuberculosis, while having a bad outlook during childhood, presents an especially poor prognosis in the nursing infant. Inherited syphilis also has a bad outlook, and at this time of life measles, pertussis and scarlet fever are prognostically bad. While the course of so many diseases is more severe in the early years of life, the later years of childhood are seen to offer a more favorable outcome. Pneumonia, which is so often seen at this time, has a much better prognosis than when it occurs in adults. The strength of the heart is of the greatest importance, and since valvular disease, and the causes of fatty degeneration—the abuse of alcohol and tobacco, and obesity, are all absent in children, it is perfectly understandable why the course of pneumonia in a child and that in adult life may be so different. While the uncomplicated course of every disease is more or less typical, as a rule it is markedly affected by complications. Factors that increase the source of infection afford a poor prognosis; previously existing disease has the same influence in the prognosis. Tuberculosis previously existing can well be imagined to have a very bad effect on any acute infection. Unhygienic surroundings, such as poverty, deficient care, foul and dusty air, lack of light and fresh air, and improper and inadequate nourishment are factors yielding an unfavorable influence upon the course of the disease. The influence on the morbidity and mortality of infancy and childhood of unhygienic surroundings and unfavorable environment due to poverty and ignorance is enormous. The physical development and well-being of the child is the result of three factors, namely: inheritance, environment and feeding. Certainly, heredity is beyond the power of the physician to alter; the second factor is somewhat within his control; and the third, that of food, is almost entirely within his influence, in most classes of people.

In giving a prognosis in early life, the physician must bear in mind two things; one is the liability in infancy to sudden and unexpected death from various unsuspected causes, the other factor to keep in mind is the susceptibility of infants and children to develop complications. The occurrence of sudden death is not an uncommon incident, and in those who are apparently healthy. At times they are found dead in bed, and this usually happens with those who are delicate or suffering from malnutrition. The most frequent causes for sudden death in infants are as follows: Malformations, internal hemorrhage, asphyxia, thymic enlargement, atelectasis, marasmus, convulsions, and unknown causes ushered in with a very high temperature.

2801 Pacific Avenue.

Successful Inoculation of a Cock's Wattles With Variola.—The cornea of the cock having been shown to be negative to inoculation with variolous pus the experiment was repeated in the wattles in a scarified area. After the usual incubation period characteristic variolous pustules appeared. Bertarelli, the experimenter, believes this test will rank with the rabbit cornea inoculation in the differential diagnosis of smallpox.—*Gazette hebdomadaire des sciences médicales de Bordeaux.*

Medicolegal Notes.

Death Certificate Admissible in Utah as to Cause of Death Notwithstanding Privileged Communications Statute.—The Utah Supreme Court holds that where a certificate of death is in the form prescribed by Comp. Laws 1917, § 5045, and recorded as required by statute, a certified copy of the record, declared by section 5058 to be prima facie evidence in all courts and places of the facts therein stated, is admissible in an action for death as to the cause thereof. It is also held that section 5058 does not contravene section 7123, subd. 4, prohibiting a physician, without consent of his patient, testifying in a civil action as to information acquired in attending the patient which was necessary to enable him to prescribe. If it did, being part of a later act, it would prevail.—Bozicevich v. Kenilworth Mercantile Co. (Utah) 199 Pac. 406.

Physician Not Liable for Patient's Ignorance of Consequences of Refusing to Follow Advice.—In an action against a physician for failure to treat with proper care and skill a "fracture of the bone of the upper tibia at the knee joint," the jury found for the plaintiff, who excepted to an instruction of the trial court, and its refusal to give requested instructions. The evidence conflicted on the question of negligance of the defendant in failing to have an *x*-ray photograph of the plaintiff's leg taken, which, it was claimed, would have disclosed a fracture at the knee joint. There was evidence that the defendant advised the plaintiff to have the photograph taken, but that he declined because of the expense connected therewith. The plaintiff offered evidence that no such suggestion or advice was given. The defendant requested the trial court to rule: "If the jury find that the *x*-ray photograph was required to determine whether any bone of the plaintiff's leg was broken, and he was so informed by the defendant and declined to have such photograph taken, then the defendant is not responsible for not discovering the broken bone." This request was refused. The Supreme Judicial Court of Massachusetts holds that this request should have been given. If the *x*-ray photograph was not taken because of the plaintiff's refusal, the defendant could not be charged with negligence in this respect.

He was responsible to the plaintiff for the failure to use the care and skill of an ordinary practitioner in the community where he practiced. If such a photograph was essential in order to discover the fracture, and the physician, in the exercise of that degree of care required of him, advised that it be taken, and the patient refused this advice, the physician could not be charged with negligence. The plaintiff could not hold the defendant responsible for the consequences of his own want of care, nor attribute to him damages resulting from his own neglect; and he could not complain if the injury resulted from his refusal to follow the advice of the attending physician. The defendant excepted to the instruction: "You would have to find that the patient refused to have the *x*-ray taken with the full knowledge on the part of the patient of the danger that was involved." It was held that this instruction was not a correct statement of the law. A patient, when he places himself in the care of a physician, cannot decline to follow his advice or adopt his suggestions because the patient does not possess full knowledge of the dangers involved in his neglect, or in his failure to do what the physician recommended. The patient cannot charge the physician with negligence if the patient himself refuses to carry out the directions because ignorant of the consequences which might result from such failure. The patient may fail to understand fully the necessity of doing what the physician recommends, but he cannot attribute to the physician the damages which resulted from his own failure to have something done, when this was caused by his own conduct, even if he was ignorant of the consequences which would result from his refusal. If the rule were as given in this instruction to the jury it would place an unreasonable burden upon the physician, and would require of him a much higher standard of care than the law requires. The defendant's exceptions were sustained.——Carey v. Mercer (Mass.) 132 N. E. 353.

MEDICAL RECORD.

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THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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THE TOXEMIA (ACIDOSIS?) OF PREGNANCY.

THE tendency during the past quarter century to group almost the entire special pathology of pregnancy under one head which comprises especially acute yellow atrophy, pernicious vomiting, cholemia, eclampsia, etc., has always been opposed by conservative obstetricians, with the result that the old nomenclature and nosological distinctions still obtain in a majority of reports. It is admitted that in these severe and fatal complications of gestation the liver shows more or less degeneration. In eclampsia these lesions may be minimal, while in acute yellow atrophy they are total, and in pernicious vomiting, although present at times, they are often wanting. This common participation of the hepatic cells does not appear to prove the identity of the affections in question and some obstetricians reserve the term toxemia of pregnancy for such conditions as "eclampsia without convulsions" or without renal lesions, these conditions being sometimes spoken of as cholemia. In a case recently reported by Couvelaire and republished with a second case by the same author with Aubertin in the *Journal de médecine et de chirurgie pratiques* for Dec. 25, 1921, cviii, 24, the summary is as follows: the woman, aged 45, was presumably sound although a history of scarlatina and typhoid fever suggested the possibility of damaged kidneys, and her record as a childbearer was also suggestive of syphilis. Her fifth gestation went ahead uneventfully with no elevation of blood pressure and but a trace of urinary albumin. Labor was also normal from the merely obstetrical angle, although she developed cyanosis and dyspnea and two hours after delivery died with these symptoms, but with no suggestion of uremia, convulsions, coma, or jaundice. Autopsy showed but one lesion to account for death—an acute fatty degeneration of the liver suggesting the liver of phosphorus poisoning. The kidneys showed some evidence of former nephritis but apparently had functioned well. The authors make no mention of the term acute yellow atrophy and clinically of course such a condition did not exist. The postmortem appearances, the occurrence in pregnancy, the suspicion of syphilis, the fatal ending, all suggest acute yellow atrophy, but in that affection there is seldom or never a suppression of the entire clinical syndrome. The authors use the term acute hepatic degeneration and are inclined to suspect the existence of an acidosis, the suspicion having been formed after study of a second case which was of the same order but with a notable acidosis. The patient, aged 24, was seven months pregnant when she developed, within two days, headache, vomiting, dyspnea, cyanosis, albuminuria, and a small, rapid and compressible pulse. Acetonuria then appeared and although there was some initial improvement the symptoms all returned in full force and a dead child was brought away by *accouchement forcé*. Delivery gave no relief and the woman died in a few hours with dyspnea and cyanosis and imperceptible pulse. Autopsy revealed apparently intact organs to the naked eye but the hepatic tissue was found by the microscope to show central lobular necrosis. The fetus presented similar lesions in the liver. Acidosis, according to the author, is a symptom of acute hepatic insufficiency, and its presence was shown not only by the urinary examination but by the syndrome of incoercible vomiting, epigastric pain, and dyspnea *sine materia*.

INVOLUNTARY MOVEMENTS IN SYRINGOMYELIA.

MARINESCO of Bucharest was the first to describe disturbances of the voluntary movements in syringomyelia. These have a double interest inasmuch as they concern both the clinical aspect and the physiological pathology of the disease. These patients present involuntary movements of the upper limbs, involving the fingers and especially the thumb. They consist of rapid vibratory jerks, usually occurring in paroxysms, which appear and disappear without any apparent cause. The patients present the classical type of syringomyelia, and cerebral disturbances or epileptic attacks are not noted. The clonic movements observed vary in intensity; the thumb in one case presented vibratory clonic movements during the entire day, but decreased when the patient took hold of some object using energy in so doing. When a registering apparatus is used it will be found that these clonic movements occur in paroxysms followed by isolated jerks, separated by variable intervals of rest. The onset of these paroxysms is sudden and the type of jerk is not always the same. The oscillations are rapid—averaging about five per second. A very notable difference in the amplitude of the jerks is not observed. It is interesting to note that the jerks do not coalesce but are completely separate. The direction of the clonic movements is indicated by the action of the antagonist muscles; thus in some cases the clonic movements have the same direction as extension of the thumb, which still persists, although weakly, while flexion is practically nil.

The pathological physiology of clonic movements and myoclonics in general has given rise to many opinions on the subject. The seat of clonic move-

ments has been much discussed; some, like Friedreich, Loewenfeld, Marie, and Venturi, believe in a spinal origin of myoclonus. Others, like Minkowski and Grawitz, regard it as cortical in origin, and Raymond is likewise of this opinion. Seppilli developed the cortical theory, showing that clonic movements are associated with epilepsy, while Ziehen has also maintained that clonic convulsions proceed from the cerebral cortex, while tonic convulsions have their origin in the subcortical centers. Bouly believes that clonic movements met with in syringomyelia—an affection of spinal origin—warrant us in affirming that the cord is capable of giving rise to clonic movements, and he points out that his cases were all syringomyelia without cerebral complications. One of these patients died and autopsy showed that the cord presented characteristic lesions of syringomyelia while the brain was normal in appearance.

Now, what portion of the cord is the site of origin of these movements? Hoffmann and Marinesco have shown that the process of gliosis in syringomyelia has its starting point in the periependymal epithelium and neuroglia. The hyperplasia of the neuroglia produces, either through the intermediary of circulatory disturbances or by mechanical compression, an irritation of certain cell groups; this is slight, but its equivalent is the production of these clonic movements. It therefore results that the faculty of provoking the occurrence of clonic movements does not belong to any special nerve center, but is the manner of reaction of the nervous motor centers under the influence of stimuli, sufficiently strong to determine movements, yet sufficiently weak so that there is fusion of the jerks. The researches of Schlesinger, Marinesco, Ingelraus, Bouly, and others sustain this point of view.

VISUAL DISTURBANCES AFTER HEMORRHAGES.

IT is common knowledge that losses of blood of all types, single or repeated, irrespective of the importance, causation, and seat, are followed at times by divers disturbances of vision which in about half the cases are succeeded by atrophy of the optic nerves and terminal loss of sight. It must not be understood that this condition is at all common. There are about 250 recorded cases, an almost infinitesimal fraction when compared with the great frequency of hemorrhage. The latent period is very short in most of these cases—from 3 to 8 days only between the hemorrhage and visual disturbance. The latter comprises nyctalopia, which is of brief duration and benign; homonymous hemianopsia of cortical origin, without fundal alteration, and bilateral amblyopia (rarely unilateral) which passes rapidly to complete or partial blindness. Thus far there is no case on record in which the latent period has exceeded three weeks. Subjects of these disorders have been of all ages, hemorrhages of all clinical forms. If the condition were common it would be apt to manifest itself especially after menorrhagia and childbirth and, in the days of universal bloodletting, in those who were bled to excess.

Professor Terson of Paris, who read a paper on this subject before the Ophthalmological Society of that city last November (*Gazette des Hôpitaux*, December 1-3, 1921, xciv, 95) states that the fundal finds in these cases consist usually of ischemia of the optic nerve with contraction of the retinal arteries and, at times, edema of the retina and optic disk. After this picture is in evidence recovery is still possible. The nerve atrophy which sets in may be partial or total.

The ophthalmologist is interested in determining the pathogenesis of this affection and in the discovery of an intensive plan of treatment to arrest its progress. As it stands to-day the affection is an enigma. What does comparative pathology teach us, what general pathology in man, what experiment?

For purposes of comparison we have certain ischemic intoxications, for example quinine amaurosis, which might throw light on the possible genesis of a substance toxic to the optic nerve in connection with regeneration of the blood following hemorrhage. The hypothetic substance, does it produce its effects by contraction of the blood-vessels? There is no evidence in pathology which warrants the assumption that a mere ischemia can entail atrophic changes in the nerve. The most profuse hemorrhage may not affect the eyes at all. The occasional occurrence of unilateral cases, however, is the chief stumbling-block for all theorizing. Does the hemorrhage mobilize some toxic principle in the organism? It is possible that blood studies at the right moment might disclose a hemoclastic (colloidoclastic) crisis, such as might cause a precipitation in the peripheral vessels; which, however, might be harmless in regions other than the fundus oculi. The few recorded autopsies agree in the absence of all intravascular pathology—neither inflammation, hemorrhage, embolism, nor thrombosis.

THE PHYSIOLOGICAL COMPLEX.

THE general public has picked up so much of the psychoanalytic jargon that it has become now quite the thing to discuss one's complexes and repressions and fixations in social intercourse. Probably the most popular term which has been borrowed by the laity is the "complex." This is used not only approximately correctly, but in all sorts of erroneous ways. It is a facile way out of a difficulty to say that one has a "complex" about it, even though the statement may mean nothing in particular. The general understanding moreover seems to be that these complexes are pernicious things and that the task of the psychoanalyst is to remove them. Thus we see facetious reference in the public prints to "going to a psychoanalyst and getting one's complexes cut out." Even in the profession this is the view somewhat generally held. Indeed psychotherapeutists themselves are not entirely free from the idea of the essentially pathological nature of the complex. The complex is not so obviously an evil

as some other things, but in psychotherapy it is blamed for a great deal. It would be well then to call attention to the fact that it is not necessarily pathological, and may even prove to be a beneficial factor in the patient's life. In the familiar example of the Œdipus complex we may find that the mother fixation in certain cases makes for a more satisfactory adjustment to the world than would be possible without it. And when such is the case, it would of course be positively harmful to try and rid the patient's mind of it. A complex acting in this way might very well be termed a physiological complex to imply that its force is exerted in a direction collinear with the patient's best interests.

The Structure of Bacteria.

DESPITE our knowledge of the structure of the cell, that of the microscopic nature of the bacterium is fragmentary. Differences in staining effects signify differences in structure, but these show a notable lack of type. In some bacteria the ends stain more strongly than the middle, while in others the so-called zebra stripes appear. It is evident that these differences throw little light on the common microscopic structure of microorganisms and that what is wanted is not difference but similarity. Something is known of the intimate nature of fungi. Yeast cells and fungi exhibit protoplasm which stains and vacuoles which do not stain. But these vacuoles may contain various granules and liquids which take a notable stain. Some kinds of granule exhibit certain movements and have been named dancing corpuscles. It appears very likely that, like the yeasts and fungi, the bacteria show ordinary protoplasm, vacuoles and different forms of granule within the latter, including the dancing corpuscles. Differences in distribution might then explain differences in details, which do not antagonize the existence of a basic identity in structure. Bergstrand of Stockholm discusses the structure of bacteria in the *Acta Medica Scandinavica* for December 5, 1921, lv, 6, and shows that structure of the individual bacterium varies much with age; that vacuoles may differ in nature and that they may fill with various fluids and granular bodies; that protoplasm tends to break up and form clumps in old bacteria; that a bacterium has no nucleus in the sense that yeast cells and fungi have nuclei. In one species of bacterium at least he has seen the so-called budding disk found in yeast cells, which may perhaps play a role in bacterial reproduction or be homologous with a nucleus.

News of the Week.

Sleeping Sickness Appears in Russia.—According to a cablegram under date of Feb. 7, epidemic encephalitis is making its appearance in Russia on a scale to cause alarm. Moscow is said to have more than 100 cases at the present time. The disease appeared in the Ukraine in considerable proportions two years ago this winter and later spread northward. About 70 per cent. of the patients die. Dr. D. Gorokhoff, professor of surgery and gynecology at Moscow University, died a victim of the disease.

Conference on Nervous and Mental Ills of Ex-Soldiers.—Director Forbes of the Veterans' Bureau conferred with leading neuropsychiatric specialists of the country in Washington, D. C., on Feb. 10, on means of improving the bureau's method of dealing with mental and nervous cases among disabled former service men. Questions of physiotherapy were discussed. The hospitalization of mentally afflicted and nervous men, the necessity for additional hospitalization, and the training of the personnel of the bureau dealing with those patients were also laid before the conference. The bureau's records show that approximately 9,000 former service men are being treated in hospitals for mental diseases. Mr. Forbes said, however, that there were thousands of these cases, beneficiaries of the bureau, who are not receiving hospital care.

Medical Training Not Yet Wholly Under Rockefeller Direction.—The General Education Board of the Rockefeller Foundation has just made public its annual report, in which it endeavors to show that medical education in the United States is not now as far advanced as was that of Germany in 1914. The report states that there is still lacking in this country a medical school that is on the clinical side well rounded and well equipped. A comparison is drawn between the state of the fine Johns Hopkins Medical School and that of the two smallest of the twenty-two German universities, at Marburg and Giessen. The total teaching equipment of Johns Hopkins is not much more than 400 beds, and some important branches have none at all. Marburg has more than 700 teaching beds and Giessen more than 600. The report adds: "It is no exaggeration to say that there is this day no medical school in the United States which possesses under complete university control clinical facilities as extensive as these two smallest and weakest of German universities which are about to be discontinued." The report goes on to say that the entire fund of the Board for medical education might be spent in perfecting a few institutions, but it is believed greater good can be accomplished by stimulating and improving medical education in all sections of the country by smaller contributions. In other words it is better to buy a controlling interest in all the schools than to own a few outright.

To Build Up Western Reserve Medical School.—The trustees of the Western Reserve University have accepted a donation of $2,500,000 from Samuel Mather of Cleveland for the purpose of building a new medical school building. The gift will make possible one of the finest medical school buildings in the United States. Mr. Mather's gifts to the university total more than $4,000,000.

To Place Arkansas Medical School on Accredited List.—A conference was recently held with the American Medical Association Committee on Medical Education with the purpose of making arrangements whereby the Arkansas Medical School may be placed on an accredited basis by the addition to the present curriculum of junior and senior years. Two years ago the course was reduced from four to two years because opportunities for clinical work were not available. Since then students have been forced to go outside of the State to complete the required work for a medical degree. Two new hospitals have been completed which will afford facili-

ties for clinical work, and it is probable that the medical school will resume its full course in the near future.

Kentucky Physicians Oppose Shorter Medical Course.—Delegates of the Kentucky State Medical Society, in joint session with the health and sanitary committees of the House and Senate, on Jan. 21, 1922, opposed a legislative measure designed to relieve a shortage of physicians in rural districts by reducing the standard of medical training. The meeting was called at the request of the Governor for the purpose of drafting a bill which would encourage the training of more physicians so as to aid the rural districts of the State.

Medical Clinics for Physicians.—The Society for the Advancement of Clinical Study in New York announces that the principal hospitals of New York are joining in a plan to provide daily medical clinics which shall be open to all members of the medical profession. The Committee on Medical Clinics will so arrange the clinic dates for each hospital that at least one clinic will be given daily. The attempt will also be made to have subjects of paramount importance covered at regular intervals. The value of such a plan for the advancement of medicine is entirely obvious. At an early date regular weekly bulletins will be issued, giving in detail the program of the clinics for the following week. For the present these bulletins will be sent without charge to those physicians who signify their interest and expectation to attend these clinics at least occasionally. The clinics will be held with a few exceptions at three in the afternoon. Further information may at any time be secured at the office of the Society for the Advancement of Clinical Study, New York Academy of Medicine, 17 West Forty-third Street. The Committee on Medical Clinics is composed of Dr. Dudley Roberts, chairman, and Drs. William R. Williams, Rowland G. Freeman, Walter L. Niles, Lewis F. Frissell, and Dever S. Byard.

Physicians Organize to Fight Chiropractor Bill.—Committees representing the Medical Society of the State of New York and the Medical Society of the County of New York met recently to organize opposition to a bill introduced into the Legislature to license chiropractors. According to a statement made by George W. Whiteside, counsel for the medical societies, the bill contains a "waiver" clause, which would license all chiropractors now practising without any sort of examination. It would make every outlaw practitioner today a "Doctor of Chiropractic" and would subject future candidates for that title to examinations prepared by an organization created under the bill. This organization would be named by the State Board of Regents from a list of names approved by the chiropractic organization here.

Brewers Lose Medicinal Beer Suit.—Piel Brothers, brewers, the first brewing concern in New York State to seek a permit to manufacture medicinal beer after the ruling of the Attorney General several months ago, have lost in their action to enjoin and restrain the Federal authorities from interfering with them in the manufacture of beer for medicinal purposes. The decision was rendered in Brooklyn by Federal Judge Edwin L. Garvin who, in his decision, went into the provisions of the Eighteenth Amendment, the Volstead Act, and the Willis-Campbell Act. He held both of the latter acts constitutional. He took the position that beer is to be considered more as a beverage than as a medicine. He cited other decisions to support his position and held that it appeared that Congress deemed this legislation imperative to accomplish effective enforcement of the amendment, and at the same time was satisfied that there is little or no value in beer either as a therapeutic agent or as a galactagogue.

Ohio State Hospitals To Be Improved.—According to a statement made by State Welfare Director H. S. MacAyeal, arrangements have been completed for increasing the personnel of the Ohio State hospitals. The individual problems of each institution have been investigated and each has been authorized to enroll new staff members, district nurses, and specialists.

Medical Society Condemns Contract Practice for Reduced Fees.—At a regular meeting of the Sedgwick County Medical Society, held in Wichita, Kan., Jan. 29, 1922, resolutions were adopted recommending that the Society condemn any contract practice that pays a fee less than the regulation fee adopted by this Society. The recommendations also condemned other methods of organizations interested in promoting contract practice.

Influenza in New York During January.—The New York Health Department in its *Weekly Bulletin* analyzes from the standpoint of age and sex the 1691 cases of influenza reported in the Borough of Manhattan from Jan. 3 to 31, inclusive. In 385 cases no information as to the age and sex of the person affected was given. Of the balance 626 were male and 680 female. One hundred and twenty-five children under five years of age were affected; among these there were more females attacked than males. In the age group from 5 to 9 years, 101 cases were reported from 10 to 14 years, 77 cases were reported; in persons over 60 years of age only 48 cases were reported. The greatest number of cases occurred in the group between the ages of 20 and 40 years. The disease, therefore, presents very much the same features that were noted in previous outbreaks, so far as age distribution is concerned.

Amendment to Sanitary Code Regulates Barber Shops and Beauty Parlors.—At a meeting of the New York City Board of Health, held on Jan. 26, 1922, Section 335 of the Sanitary Code was amended to regulate in minute detail the conduct of barbers, hair-dressers, manicures and beauty cultivators. The amendment provides that henceforth no public barber shop, hair-dressing establishment, manicuring or beauty parlor shall be conducted or maintained in the City of New York without a permit therefor issued by the Board of Health, or otherwise than in accordance with the terms of said permit and with the regulations of said board. These regulations are twenty in number and call for sterilization of all instruments after each separate use. Stick astringents, powder puffs, sponges and neck dusters are prohibited. One piece of soap must not be used for more than one person and individual finger bowls and shaving cups must be provided. Recent investigation has shown that some of the largest barber shops in the city have not been complying with the present regulations.

Hospital Notes.—The Hospital for Joint Diseases, New York, has acquired a three story dwelling house at 50 East 124th Street. With this purchase the hospital has now assembled a site 200 x 154 feet, upon which it plans to construct a new eight story building.

The new Government sanatorium at Dawson Springs, Ky., will be opened on Washington's Birthday, Feb. 22. The buildings have just been completed at a cost of $2,300,000 and are equipped to accommodate 700 former service men. Dr. H. E. Hitledge, former medical officer in charge at Fort Bayard, N. M., has been appointed commanding officer at the sanatorium.

At the annual meeting of the trustees of the Faxton Hospital, Utica, N. Y., held Jan. 26, it was announced that $206,280 had been raised toward the construction of a new building, which will be begun early this spring. Dr. T. H. Farrell was elected president of the hospital staff.

The new Haaf Hospital at Northampton, Pa., erected at a cost of $100,000, was dedicated on Feb. 2. The new hospital is named in honor of Dr. Charles A. Haaf, who was instrumental in founding the institution.

A two story building for the treatment of diphtheria is to be added to the Philadelphia Hospital for Contagious Diseases, at Second and Luzerne streets. The estimated cost of the addition is $39,000.

Mr. William Jennings Bryan has donated his former home in the suburbs of Lincoln, Neb., to be used as a national Presbyterian Hospital for missionaries and teachers and their families who have been incapacited for work while in China and Japan.

Work will soon be begun on a large general hospital in Louisville, Ky., which according to estimates will cost about $500,000. This amount has been raised by the Baptist Church in Kentucky.

A modern hospital building is in the process of construction to replace the Seller's Hospital at Anniston, Ala., which was destroyed by fire some time ago. The cost of the new structure will be approximately $100,000.

The Tuscaloosa Hospital Association announces an issuance of city bonds to the amount of $50,000 and cash contributions of $32,000, which will enable them to begin work on a new city hospital immediately.

More than one-half of the $150,000 required for the construction of the proposed Methodist Hospital at Scottsbluff, Neb., has been pledged.

The Presbyterian Hospital, Philadelphia, has resumed its building plans outlined before the war. The trustees of the hospital recently executed a contract for the construction of the first three units of the new buildings, to be located on the hospital property. Work on the building operations will commence next month and will be completed, it is anticipated, within a year. With the completion of the extension plans, it is proposed to establish industrial clinics at the hospital equipped with special apparatus for the treatment of such cases. At present an average of 125 industrial cases are treated there monthly.

The board of managers of the Chester (Pa.) Hospital have awarded the contract for a new hospital building to cost $205,500. The hospital will have a capacity of 125 beds. Construction work will be begun immediately.

According to its annual report, the Roanoke (Va.) Hospital has just completed its most successful year. A new $150,000 building is expected to be erected during the present year.

Dr. John Dill Robertson has resigned the position of Health Commissioner of Chicago, which he has held for the past seven years. Dr. Herman N. Bundesen has been appointed to succeed him.

Dr. Wilfred T. Grenfell, known as the "Labrador doctor," is in this country delivering a series of lectures on the development of medical and social work in Labrador.

Dr. Richard Derby of Oyster Bay, L. I., has been appointed to the position of manager of the Kings Park State Hospital. He succeeds Dr. Henry Brown, whose term expired.

Dr. Stuart McGuire of Richmond, Va., has been awarded the Distinguished Service Medal by the United States Government, in recognition of his work in organizing a hospital unit and serving as its head throughout its training and its service in the battle areas of France.

Dr. William S. Thayer of Baltimore and Dr. Herbert C. Moffitt of San Francisco have been selected as candidates for the Harvard Board of Overseers by the Nominating Committee of the Harvard Alumni Association.

Dr. Samuel J. Crowe and Dr. John I. Baylor of Johns Hopkins Hospital have sailed for Europe to study surgical methods in foreign hospitals.

Dr. L. R. Williams, director of the Rockefeller Foundation, is touring Central Europe in connection with the work of the Foundation.

Dr. Edward T. Delehanty of Albany has been named county physician to succeed Dr. G. L. Ullman.

Gifts and Bequests.—The A. Barton Hepburn Hospital at Ogdensburg, N. Y., is the recipient of a bequest of $250,000 by the will of its founder, whose name it bears.

The Good Samaritan and St. Joseph's Hospitals at Lexington, Ky., receive $10,000 each, by the will of Edmund J. Curley, who died recently in Monte Carlo, France.

Indian, Thought To Be World's Oldest Human, Dies.—Ga-be-nah-gewn-wonce, also known as John Smith, a Chippewa Indian, reputed to be 137 years of age, died at Cass Lake, Minn., on Feb. 7, after a week's illness with pneumonia. According to the Bureau of Indian Affairs he was fire raker of the once powerful Blackfeet tribe, and was able to corroborate many historical events as far back as 1800.

The Association of Cardiac Clinics held a meeting at the New York Academy of Medicine on the evening of Feb. 8, at which Dr. Frank N. Wilson of Ann Arbor, Mich., delivered an address on "*X*-Ray in Clinical Diagnosis."

The Brooklyn Diagnostic Society held its nineteenth scientific session on the evening of Feb. 3, 1922, at which Dr. Frederick M. Allen, Director of the Psychiatric Institute at Morristown, N. J., delivered an address on "How Shall We Feed Our Diabetic Patients."

Medical Society Elections.—THE NORTHAMPTON COUNTY MEDICAL SOCIETY, at its annual meeting held in Easton, Pa., Jan. 20, 1922, elected the fol-

lowing officers for the ensuing year: *President*, Dr. D. K. Santee, Bethlehem; *First Vice-President*, Dr. Paul Correll, Easton; *Second Vice-President*, Dr. Harry Pohl, Nazareth; *Secretary-Treasurer*, Dr. V. S. Messinger, Easton.

THE POCATELLO (IDAHO) MEDICAL SOCIETY, at a recent meeting, elected the following officers for the ensuing year: *President*, Dr. J. R. Young; *Vice-President*, Dr. W. W. Brothers; *Secretary*, Dr. J. E. Dameron.

THE CANANDAIGUA (N. Y.) SOCIETY OF PHYSICIANS, at a recent meeting, elected the following officers for the ensuing year: *President*, Dr. George Gregg; *Vice-President*, Dr. C. Willard Selover; *Secretary and Treasurer*, Dr. Frederick C. McClellan.

THE CENTRAL DISTRICT AND MERRIMAC COUNTY MEDICAL SOCIETY, at its one hundredth anniversary meeting held in Concord, N. H., Jan. 17, 1922, elected the following officers for the ensuing year: *President*, Dr. J. B. Woodman, Franklin; *Vice-President*, Dr. James W. Jameson, Concord; *Secretary-Treasurer*, Dr. A. L. McMillan, Jr., Concord.

THE SURGICAL SECTION OF THE HARTFORD MEDICAL SOCIETY, at a meeting held Jan. 23, 1922, elected the following officers for the ensuing year: *Chairman*, A. M. Outerson; *Secretary*, Clinton Demming; *Treasurer*, Donald Wells.

Obituary Notes. — Dr. JAMES W. FLEMING of Brooklyn, N. Y., died suddenly on the street while returning from a professional call on Feb. 8, at the age of sixty-eight years. He was graduated from the Long Island College Hospital in 1880. He was a member of the American Medical Society, the Medical Society of the State of New York, the Kings County Medical Society, and the Brooklyn Pathological Society. He was consulting physician to the Long Island College Hospital and the Baptist Home and a member of the Board of Regents of the Long Island Medical College.

Dr. WADE D. STEVENS of Pawpaw, Ill., a graduate of the College of Physicians and Surgeons, Chicago, in 1894, died recently as the result of an overdose of a narcotic, apparently self-administered. He was fifty-four years of age.

Dr. WALTER LINDLEY of Los Angeles, Cal., died of cerebral hemorrhage at his home on Jan. 24, at the age of seventy years. He was born in Monrovia, Ind., Jan. 13, 1852, and was graduated from Long Island College Hospital in 1875. He founded the California Hospital, of which he was manager and secretary for many years. He was at one time Dean of the medical department of the University of Southern California. He also served as president of the State Board of Medical Examiners and acting secretary of the State Board of Health. He was a Fellow of the American Medical Association and a member of the State and County Medical Societies. He made many contributions to medical, sociological, and literary journals and was the author of "California of the South," "The Delinquent Child in Great Britain and France," "The Traducers of Shakespeare," and "Irish Dramatists and the Irish Drama."

Dr. JAMES A. HILL of Mooresville, Ala., a graduate of Vanderbilt University Medical Department, Nashville, in 1884, died at his home on Jan. 27.

Dr. JOHN M. MALONEY of Dundee, N. Y., a graduate of Georgetown University Medical College in 1870, died on Jan. 21 after a lingering illness, at the age of seventy-six years.

Dr. ROBERT REED STEWART died at Philadelphia on Feb. 2, at the age of seventy-four years. He was graduated from Jefferson Medical College in the class of 1882.

Obituary.

PEARCE BAILEY, M.D.

NEW YORK.

DR. PEARCE BAILEY, neurologist and psychiatrist, died at his home in New York City of pneumonia following an attack of influenza on February 11. He was born in this city July 12, 1865, and was graduated from Princeton University in 1886, and in medicine from Columbia University in 1889. He was for several years adjunct professor of neurology at Columbia University and was consulting neurologist to St. Luke's, Roosevelt, New York, Orthopedic, Manhattan State, and St. John's Hospitals. He was a member of the Medical Society of the County and State of New York, the American Medical Association, the American Neurological Association, the New York Neurological Society, the New York Pathological Society and the New York Academy of Medicine. He was a founder of the New York Neurological Institute.

During the war Dr. Bailey served in the army with the rank of Colonel. He was put in charge of the organization of the neuropsychiatric service of the army, and for this and other work received the Distinguished Service Medal. He had built a new department, one of great importance for the efficiency and morale of the army, through the elimination of the mentally unstable and unfit. At the close of the war Dr. Bailey devoted himself to developing the care of nervous and mental defectives in New York State, serving as member of the State Commission for Feeble Minded. He was instrumental in establishing the Classification Clinic, where tests were carried out to determine the expediency of young people taking college training.

Dr. Bailey was widely known for his scholarly essays on neurological and psychiatrical subjects and also for his original magazine stories and literary skits. His death will be felt as a serious and almost irreplaceable loss by both the medical profession and the State.

Service Bureau.

Regular subscribers to the MEDICAL RECORD who desire information on any professional matter are invited to send their inquiries to the office of publication. Replies will be sent by mail as promptly as possible. Questions and answers of general interest may be published from time to time. When abstracts of articles from other journals are furnished the cost of typewriting will be charged.

Purchases will be made of articles of any description wanted by subscribers; a check sufficient to cover the cost should be sent with the order.

Subscribers visiting New York are welcome to use the office, 51 Fifth Avenue, as a temporary address for receiving and forwarding mail, telegrams, or small packages.

Correspondence.

COMMON SENSE IN THE PREVENTION OF INFLUENZA.

To the Editor of the Medical Record:

Sir:—The commonest disease of mankind, an acute infection of the upper respiratory passages most frequently called influenza or grippe, has had innumerable names proposed for it. Influenza, grippe, and cold were undoubtedly coined by the laity, for they have not the slightest scientific significance. The word influenza is of Italian origin and was suggested during the seventeenth century, for it was believed that this disease was the result of some influence exerted by the stars, hence influenza. Grippe was proposed by the French about the same period. The term cold is of later origin and is the most reasonable of all terms employed, for it gives a clue to some of the exciting causes of the disease—climatic changes, exposure, etc. The terms all refer to the same type of an infection which prevails chiefly during the cold weather.

There is abundant evidence that for the past three hundred years at least, the medical profession has discussed the etiology of this disease, and unfortunately exact knowledge is still wanting. The presumption established by Pfeiffer in 1893 that he had discovered the specific organism of influenza has not been confirmed. It is the common practice in the profession and laity to refer to a mild infection of this type as a cold, and to a more abrupt and serious one as influenza or grippe. This is neither logical nor reasonable, for a generally satisfactory differential diagnosis cannot be made. Furthermore, an attempt to do this is not without danger, for both the family physician and patient are apt to overlook the fact that what is apparently a so-called simple cold may abruptly change its character and assume a serious form. To discard these meaningless terms and substitute one which has some scientific value would be distinctly advantageous to the medical profession as well as the public. Under the present practice the inconsistency of a municipal health ordinance which calls for the reporting of influenza is obvious. The physician does not know what class of case clearly comes within this meaning and neither do health officials.

So-called influenza, grippe, or cold is due to the presence of certain infectious organisms found upon the mucous membrane of the air passages, particularly the nose and throat, therefore every reasonable means should be employed to prevent the transmission of the infectious agents from one person to another. We should also maintain good health by carefully observing the laws of personal hygiene and avoid the well known exciting causes, such as undue exposure to cold, abrupt climatic changes, improper dress, wet or damp feet or clothing, and drafts; the latter is so generally accepted as a common excitant of colds that it would seem unwise to open the windows of public vehicles, particularly subway cars, which allow the entrance at one point of a current of air under great pressure, the effect of which upon those in the immediate vicinity may well be understood.

It is quite true that those in robust health contract colds or so-called influenza, it is also true that those who are unmindful of their health and are not careful to avoid the exciting causes suffer more severely from the disease and are more liable to its complications than others. I believe that the severity of the influenza epidemic of 1918 was due largely to the greatly impaired physical condition of the public following the war, with its depressing influence, long continued nervous tension, and poor and insufficient food; these factors rendered the people of this and other countries far more susceptible to the disease and less resistant to the action of the specific organisms.

Unfortunately the public has not been fully advised as to the importance of good health as a very valuable means of protection. Health officials have endeavored rather to prevent the extension of this disease by the enforcement of measures which relate almost solely to the transmission of infectious agents from one person to another. It is disturbing to the public to note that the methods employed in the various sections of the country are not of a uniform character and are often diametrically opposed to each other. Public schools, churches, theaters, and the like are closed in some places, in others they are allowed to remain open. Health officials in certain cities have seriously considered the disinfection of public conveyances and in some instances the number of passengers has actually been limited; in other places these measures have received no official attention. The public naturally argues from this that the various protective measures employed during outbreaks of infectious disease are dependent largely upon the theory of public health officials and are not well recognized and approved methods of prevention. People will congregate in groups notwithstanding municipal ordinances to the contrary, and it is far better that churches, theaters, and the like should remain open where people can meet in well appointed and ventilated places where they may be informed from the pulpit or the stage concerning the means by which protection may be obtained. This is far better than for persons to seek their own assembling places, where there is no care or observation. Furthermore, the closing of places of amusement during an epidemic tends to depress the public spirit which would militate against overcoming this condition.

If public schools are closed children congregate in the halls of tenement houses and other places where there is no observation or care and where infectious disease may extend with great rapidity. It also deprives children of educational opportunities for a number of weeks or months. If they are not disturbed in their studies and are carefully examined by a nurse or physician upon reaching the school house in the morning and are kept under observation during the day, the early symptoms of the disease may be detected and there is but little danger to their associates; furthermore, if children are at school they are kept away from various sources of infection.

The disinfection of public conveyances like the disinfection of money is so at variance with modern sanitation that it is unworthy of consideration.

The value of vaccine as a preventive measure in connection with this disease has been freely discussed during the past two or three years. Even the most optimistic advocates of this form of treat-

ment do not claim its value has been assured, therefore it would seem unfair to recommend its widespread use, for it leaves the public to decide a question which the medical profession has not yet determined.

If the public could be better informed concerning the importance of maintaining good health and avoiding the exciting causes of this disease, the result would be more effective in the way of prevention than the employment of unreasonable and drastic measures which tend to depress the public and which do not secure its cooperation—a most important consideration.

ALVAH H. DOTY, M.D.

NEW YORK.

DENIAL BY PROXY OF A VERY GRAVE CHARGE.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—A schoolboy in the South is said to have been responsible for the best definition of a friend as follows: "A friend is someone who knows all about you and likes you just the same." In this attitude of mind toward the MEDICAL RECORD and its editor, my neighbor and fellow alumnus of St. Luke's Hospital, I desire the privilege of indulging in a little criticism of your editorial published Feb. 4, 1922, under the title, "A Very Grave Charge," referring to statements made in Congress by Representative Volk, himself a physician, about four or five medical men and a lawyer. Dr. Volk is a lawyer also, as well as a Congressman, and named five of the men to whom his remarks were applicable, and the MEDICAL RECORD repeats these names.

In the closing paragraph of your editorial, although you say "The MEDICAL RECORD is very loth to believe, and cannot believe unless further proof is brought forward, that these men, who are regarded by their friends as honorable members of an honorable profession, could be guilty of the despicable practices with which they are charged in the quoted remarks and elsewhere in Representative Volk's speech," you do not stop there as you might fairly have done, but continue as follows: "But since the charges have been made publicly by a physician and a representative from this State in Congress, the men named can do no less than disprove them."

Now, I desire to make the observation that this is a very grave conclusion. I maintain that Dr. Volk's privileged speech on the floor of the House of Representatives places no man under obligation to disprove anything. I charge that your conclusion is unfair, unwarranted, and un-American. The persons named have not been indicted by any jury, or accused of crime in any court, nor have charges been preferred against them in any duly organized medical society. And one can imagine from the bitterness of the controversy that such proceedings would have been instituted had there been sufficient grounds.

My own attitude toward members of our profession accused of, or under indictment for, alleged crime or misconduct is indicated in a letter published in the *New York State Journal of Medicine*, October, 1920. The letter was addressed to James Taylor Lewis, Esq., then counsel of the Medical Society of the State of New York, and included an expression of my views (largely in accord with those of Mr. Lewis) as previously stated by me on the floor of the House of Delegates of our State Society, of which I have been a member continuously for several years. After a preamble relating to the defense of members of the Society who were awaiting trial under indictment by a Federal Grand Jury for alleged misconduct under the Harrison law, in advocating that our counsel should aid in their defense if preliminary investigation seemed to warrant such procedure, I put myself on record as follows: "In other words, I believe your action and the Society's position should be determined in every case on its merits, but giving the benefit of the doubt (if there be elements of doubt) to our accused fellow-member, be he great or small, be he accused of a great or small offense, and without undue deference to the rating of the interests arrayed against him."

I feel sure that the editor of the MEDICAL RECORD will realize that he acted hastily in assuming that the burden of *proof* is upon the accused. Even denial of charges so made would be elective rather than mandatory. And you seem to have overlooked the published *denial* of Dr. Volk's charge, which appeared in the *Brooklyn Daily Eagle*, Jan. 18, 1922, under a heading in large type, "Doctors Denounce Volk Attack—Deny Conspiracy Charge," the four signing the letter being "Drs. S. Dana Hubbard, E. Eliot Harris, and Alfred C. Prentice, and Arthur D. Greenfield, a lawyer." That published letter contained so much information along the lines apparenly demanded in your editorial, that it would be well worth while to give it in full to your readers, but I do not deem it my privilege to ask for space to include it in this communication. I do wish, however, to quote briefly from the *Congressional Record* of Jan. 24, 1922—over ten days prior to the date of the MEDICAL RERORD containing your editorial which called upon the persons named to disprove the charge made against them.

Representative Mills of New York, on the floor of the House, secured "unanimous consent to proceed out of order for five minutes," and, after stating Dr. Volk's charge, made the following statement: "On behalf of these gentlemen, I desire to deny categorically that any one of these men has any interest in any sanitarium, has benefited or could possibly benefit personally in any way through measures taken by the New York City Department of Health and by the Bureau of Internal Revenue. I desire, furthermore, to call the House's attention to an article which appeared in the *Brooklyn Daily Eagle* of Jan. 18, 1922, in which the gentleman from New York [Dr. Volk] admitted that he could not prove any connection between the gentlemen mentioned and sanitarium owners. I challenge the gentleman to produce proof to sustain the charges which he has publicly made, or, if he has not such proof, to withdraw the charges. The fact that the Constitution provides that no member may be questioned in any other place for a speech made on the floor of the House places on him a great responsibility. Surely it was never intended that that privilege should authorize a member of Congress to blacken the character and impugn the integrity and honor of his fellow citizens without

proof of any kind to sustain the charges, while denying to his victims adequate opportunity of refuting them."

I am well acquainted with at least two of the men named by Dr. Volk, and I am satisfied that they are absolutely innocent of selfish or sinister motives in connection with narcotic drug control in any and all of its relations. I shall patiently await their vindication—and I mean the vindication of all those named by Dr. Volk—but not necessarily by themselves and at their own expense. I should have expected the grand old MEDICAL RECORD to be on what I believe to be the right side, and hope yet to see it at least neutral and impartial. It should take heed lest it be deceived by the clever devices of what I have previously characterized in your columns as "the gentle art of propaganda, conveying an entirely erroneous impression to persons unfamiliar with the facts." "Judge not, that ye be not judged."

J. MILTON MABBOTT, M.D.

19 FIFTH AVENUE.

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, January 25, 1922.

The Study of Psychology in Great Britain.—The study of psychology has been greatly neglected in this country, but the importance of the subject is becoming impressed upon the minds of the more far-seeing members of the British medical profession. Sir Frederick Mott, the well-known authority on diseases of the nervous system, is one of those who advocates, in and out of season, the teaching of psychology at the medical schools. He said not long ago that if his time were to come over again to deliver lectures on physiology to students that he would make psychology a part of the courses. Owing to his insistence and that of others who see alike with him, a diploma of psychological medicine is now granted in London. Under the auspices of the London County Council a series of lectures and practical courses of instruction are being given at the Maudsley Hospital in South East London. The fourth course by Sir Frederick Mott began on Jan. 3, last. This course consists of eight lectures on the anatomy of the nervous system and takes place on Tuesdays at 2.30 p. m. Beginning on Jan. 6 eight lectures on the physiology of the nervous system will be given by Dr. F. Golla. These lectures take place on Fridays at 2.30 p. m. Beginning on Jan. 5 eight lectures on psychology will be given by Dr. Henry Devine. These lectures take place on Thursdays at 2.30 p. m. During April, 1922, lectures and demonstrations will be given on the following subjects: (1) The diagnosis, prognosis, and treatment of mental diseases, (2) Mental defect and crime. (3) The practical aspect of mental deficiency. (4) Pathology of mental diseases, including brain syphilis, its symptomatology and treatment. (5) The symptomatology of mental diseases. (6) The psychoneuroses. (7) Demonstrations in neurology.

The Greenfield Medical Prize.—Prof. W. S. Greenfield, one of the greatest, if not the greatest, British pathologist, is to have his memory kept green by a memorial of a peculiarly fitting character. It has been announced recently that Mrs. Greenfield, on behalf of the family of her late husband, has decided to offer an annual prize to the junior members of the Pathological and Bacteriological Laboratory Assistants' Association as a memorial of Prof. Greenfield's long and distinguished association with pathological research and teaching. In so doing Mrs. Greenfield wishes to show her sympathy with, and appreciation of, the work of the Laboratory Assistants and the part they play in the development of the science of pathology. It is obvious that the work of this young association will be greatly helped forward by such a gift, and it appears that many former residents and assistants of Prof. Greenfield may welcome the opportunity to commemorate his memory and help to widen the scope of this scheme by offering also a prize to be competed for by senior members of the association, and by giving Greenfield Memorial Medals to the successful competitors. It is suggested that the prizes be awarded as follows: (1) The Junior Medal and Prize, by oral and practical examination of members of the Pathological and Bacteriological Laboratory Assistants' Association under 21 years of age. Any recent certificate in chemistry, physics, mathematics, or other subjects approved by the Examining Council, submitted along with the candidate's application, to be taken into consideration by the Examining Council. (2) The Senior Medal and Prize, for an account of, or essay on, some original investigation on a subject announced at least one year before the award is due. It is suggested that in both cases the prizes and medals should be awarded in one year for pathology, in the next year for bacteriology, and at longer intervals for museum technique. No Senior medallist shall be eligible to compete for a second medal, but winners of a Junior medal are eligible to compete for the Senior. The object of the prizes would be to enable the prizemen to travel in order that they might study the methods in use in other laboratories than their own, and to enable the winner of the Senior prize to travel abroad. While on the subject of the late Prof. Greenfield it may not be amiss and will be of some interest to American medical readers to give an account of the career of William Smith Greenfield, who at the time of his death, Aug. 23, 1919, was Emeritus Professor of Pathology and Clinical Medicine in the University of Edinburgh. Greenfield was one of the greatest of British pathologists and also possessed that rare gift of being able to impart his knowledge to students. His appointment to the Chair of Pathology in Edinburgh University came somewhat as a surprise. When Prof. W. R. Sanders died near the commencement of the winter session, 1880-81, it was generally thought that the late Dr. D. T. Hamilton, who during the months following the decease of Prof. Sanders took over the professional duties, would be given the position in his stead, but the curators chose the young and brilliant professor in the Brown Institution, London. Thus it came about that Scotland secured for the teaching of pathology both Greenfield and Hamilton, the latter being soon afterward elected to the professorship of that subject in Aberdeen University Medical

School. Greenfield held the post for 31 years, during which period it would be no hyperbole to say that the whole aspect of pathology was changed. Bacteriology progressed by leaps and bounds, so much so, indeed, that in 1912 a separate professorship had to be established to cope with the teaching of it. About this time the teaching of clinical medicine was separated from pathology, and the work that Greenfield carried on with so great zeal and energy for 31 years is at this time done by three professors. William Smith Greenfield was born in Salisbury in 1846, studied at University College and Hospital, London, obtained the diploma of M.R.C.S. Eng. in 1872 and graduated M.D., London, in 1874. He then became demonstrator of morbid anatomy and pathology in the medical school of St. Thomas's Hospital. He proved himself a great assimilator of knowledge and a peculiarly capable teacher and was one of the first to systematize practical instruction in pathological histology. After holding several other important posts, in 1878 he was appointed professor of pathology in the Brown Institution in succession to Burdon-Sanderson and, by his researches on anthrax and pyemia and septicemia, he was instrumental in assisting to lay firmly and well the foundations of bacteriology. The chief characteristics of Greenfield were his thoroughness and accuracy, and these qualities were conspicuous all the time that he labored in Edinburgh. He was a splendid teacher of clinical medicine and was a past master of the art of teaching clinical diagnosis by a mixture of banter, raillery, and seriousness. His remarks were often tinged with more than a little sarcasm. I have referred in a former letter to the teaching of the Edinburgh School of Pathologists and this teaching is well expressed in the work on pathology written by two of his most brilliant pupils, Drs. Beattie and Carnegie Dickson.

Fellowship of Medicine and Postgraduate Medical Association in London.—The arrangements for the special course in surgery, as already advertised to begin on Feb. 20, next, are nearing completion, and the full syllabus will be published shortly. The course will cover a period of six weeks, concluding on April 1, and the following general and special hospitals will take part: North East London Postgraduate Hospital, Cancer Hospital, Hampstead General Hospital, National Hospital for the Paralyzed and Epileptic, Queen's Hospital for Children, Royal Free Hospital, Royal National Orthopedic Hospital, St. Mark's Hospital, St. Peter's Hospital. The course will consist of a morning and afternoon session and will be so arranged as to involve a minimum amount of traveling each day.

Progress of Medical Science.

Boston Medical and Surgical Journal.

February 2, 1922, clxxxvi, 5.

1. The Baroness von Olnhausen. Alfred Worcester.
2. Recurrent Inguinal Hernia. Ralph W. French.
3. Fracture and Dislocation of the Cervical Vertebræ Without Paralysis. Report of a Case. Willis E. Hartshorn.

2. Recurrent Inguinal Hernia.—Ralph W. French records that in 300 inguinal hernia cases operated upon at the Truesdale Clinic in Fall River more than six months ago, he found there was a recurrence of five, or 1.7 per cent. The causes of recurrence of inguinal hernia may be summarized as follows: (1) Tension of the sutures; (2) impaired inervation; (3) infection; (4) failure to approximate the internal oblique and Poupart's ligament sufficiently low (5) leaving the internal ring too large; (6) failure to recognize a direct hernia during an operation for the indirect type. The essentials for an operation for recurrent hernia are the same as for the original hernia, that is removal of the sac which obliterates the tract and the restoration of the layers to approach the normal. All scars should be removed, the fascia laid bare of fat and mobilized, dissecting it sufficiently to allow adequate apposition for Poupart's ligament without tension. This same technique should be carried out in dealing with the lower border of the internal oblique. The sac should be isolated and removed completely. The nerves in the region of the inguinal canal, if found intact, should be preserved with care. Free use must be made of adjacent muscles and fascia to repair the deficient portions of the abdominal wall. Whenever it is possible French prefers the modification of the Bassini operation suggested by Andrews, which differs from it in that the upper segment of the flap of the external oblique aponeurosis is drawn down behind the spermatic cord while the lower flap is drawn up in front of it, the two flaps then lapping or imbricating; the cord is included between them. Occasionally it may be found advantageous to flex the thighs as suggested by Lyle, and to keep the thighs flexed during the first week of convalescence.

3. Fracture and Dislocation of the Cervical Vertebræ without Paralysis.—Willis E. Hartshorn reports this case which occurred in a soldier 20 years of age, who was hit by a locomotive while walking on a railroad track. The *x*-ray showed forward displacement of the atlas and forward displacement and fracture of the second and third cervival vertebræ. The fracture was semi-longitudinal, apparently through the arches of the vertebræ and also through the laminæ. The cervical region was swollen, painful and showed marked deformity. There was no paralysis. Advisability of forcible extension was considered, inasmuch as a number of cases have been reported in which reduction has been readily accomplished without accident, but was discarded as dangerous. Moderate traction was applied in order to secure proper splinting of the head and neck. Extension was carried over the bed. Moderate rigidity of the head and neck were secured by sand bags. On leaving bed a mechanical support was applied. Six months after discharge the patient reported for examination. He had no paralysis and no secondary neuralgias, but there was marked stiffness of the neck.

New York Medical Journal.

February 1, 1922, cxv, 3.

1. Nutritional Treatment of Tuberculosis. Clemens Pirquet.
2. The Feeding Method of the Pirquet School. Harry Apfel.
3. Calories for Children. Francis G. Benedict.
4. A Further Clinical Report upon Poliomyelitis with Cortical Involvement. L. Pierce Clark.
5. The Connection Between the Short Thick Neck and Tendency to Apoplexy, with a Note on the Relation of the Brachial and Cerebral Blood Pressures. Edgar F. Cyriax.
6. Autotherapy. Thomas M. Stewart.
7. Acute Phlegmonous Epiglottis with Report of Cases. Joseph Friedman and Samuel D. Greenfield.
8. Cystoma and Fibrocystomata of the Osseous System. E. Newton Turkus.
9. The Influence of Weather Conditions on Morbidity and Mortality in Early Infancy. Frederick L. Hoffman.
10. Maternity Homes. Janet M. Campbell.
11. Local Anesthesia in Dental, Oral, Nose and Throat Surgery. H. E. Tompkins.
12. Early Diagnosis of Cancer of the Stomach. Joseph Katz.
13. Etiology and Treatment of High Blood Pressure, Arterial Hypertension, and Arteriosclerosis. George Edward Barnes.
14. Tumors of the Heart. Hyman I. Goldstein.

3. Calories for Children.—Francis G. Benedict describes the methods by which the nutritional requirements of infants and children have been estimated at the Nutrition Laboratory of the Carnegie Institute of Washington in Boston. The data collected has made it possible to compare age, weight, pulse rate, gaseous metabolism and heat production. It has been found

that heat production furnishes perhaps the best data for comparing metabolism under the different conditions, when asleep, awake, in repose and in activity. It has been shown that metabolism increases with activity, and there is increased heat production and, to a lesser degree, increased pulse rate. These increases are much more marked in infants and children than in adults. Data have been collected showing the metabolic requirements of children from birth to the age of twelve or thirteen years of age, and a great deal of data has been collected showing the caloric requirements of adults. There was a gap, however, for children from the age of puberty to about eighteen years of age, which Benedict has endeavored to fill by making observations of a series of girl scouts, so that the general trend of heat production may now be traced in girls from birth to the age of seventeen years. The striking points are that in very young girls there is an increase in the metabolism until a weight of about eight or ten kilograms or about the age of one year; thereafter there is a decrease in the heat production per unit of weight, rather rapid at first but slowly falling off after about thirty kilograms with a pretty regular decline. In the group of girls examined the same principle was found to hold as in the younger groups, that was the younger the girls and the lighter the weight the greater the heat production. The findings for boys of these ages has been essentially the same. Comparing the heat production per kilogram of body weight and per unit of surface area for children and adults brings out the striking fact of the greater intensity of heat production during youth. This explains the well-known enormous demands for food by active, growing children. Other things being equal, children must have large food intakes. It may be safely asserted that if digestive disturbances are avoided, it is impossible to overfeed the growing child with good, simple, nourishing food. Benedict points out the great danger in a situation which exists in Vienna to-day, where children are fed on the very narrowest margin, and insists that such rationing conditions are by no means ideal for the life and welfare of children.

5. The Connection Between the Short, Thick Neck and the Tendency to Apoplexy; with a Note on the Relation of the Brachial and Cerebral Blood Pressures.—Edgar F. Cyriax calls attention to the fact that, although it is quite generally admitted that a short, thick neck is frequently encountered in patients with a tendency to apoplexy, no one, so far as he knows, had attempted to classify these two into cause and effect. He considers it quite wrong to regard either in the light of a cause of the other, even though when the tendency to apoplexy is established they may react one on the other in a vicious circle. In his opinion, both are merely the local manifestations of one common cause; namely, persistent contraction of the cervical muscles. The ultimate result of this contraction is a dorsocervical lordosis, with a close proximity of the atlas and occipit with corresponding reduction in the atlantooccipital space. This results in persistent irritation of the cervical nerves that lie in or adjacent to the contracted muscles and chronic venous congestion of the neck. The result on the circulation may be varied: a large number of vasomotor changes may ensue, their exact nature and extent depending upon which set of nerves are stimulated. The fact that arteriosclerosis has commenced may further complicate matters by tending to increase the blood pressure still further in already elevated areas. Under normal conditions the blood pressure in the brachial artery is a perfectly reliable index to that of the cerebral. For some reason or other this has been considered to be true of pathological conditions. Recent investigations, however, have brought to light a fact which definitely proves that in a large number of pathological states the brachial pressure cannot be the same as the cerebral. It has been established that in unilateral conditions, whether in arm, trunk, leg, or head, whether from disease or trauma (and even in some middle line or bilaterally equal conditions) the blood pressure in the two arms varies considerably. Obviously the cerebral pressure cannot simultaneously correspond to different values. The possibility of there being considerable difference in the brachial and cerebral blood pressures may sometimes account for two sets of cases which are somewhat puzzling; namely (1) those in which a cerebral hemorrhage occurs with a practically normal brachial blood pressure, and (2) those in which no hemorrhage occurs in spite of greatly augmented brachial blood pressure.

14. Tumors of the Heart.—Hyman I. Goldstein reviews the literature on this subject and reports ten cases, seven of metastatic sarcoma, two of secondary carcinoma, and one of primary sarcoma of the heart. He concludes that tumors of the heart are not common. Primary tumors of the heart are rare, there being only 150 cases on record in the literature. Primary sarcoma of the heart is very rare, there being about 40 cases recorded. There are probably many cases of secondary sarcoma of the heart that are never reported in the literature. They are not comparatively much less common than secondary cancer of the heart. Myxomata, rhabdomyomata, and fibromata of the heart are met with occasionally. The correct diagnosis of cardiac tumor has never been made clinically. Electrocardiographic, fluoroscopic, and *x*-ray examinations may be valuable aids in making such examinations. All cases of cardiac tumor should be reported.

Journal of the American Medical Association.

February 4, 1922, lxxviii, 5.

1. Bone and Joint Changes in Congenital Syphilis: With Report of Cases. Leon H. Dembo, Harry R. Litchfield and John A. Foote.
2. Congenital Dislocation of the Hip. Henry Bascom Thomas.
3. Tuberculosis of the Spinal Chord with Peculiar Changes. Francis Harbitz.
4. Chronic Sclerosing Osteomyelitis: Report of a Case. Arthur D. Kurtz.
5. A Case of Tabetic Charcot's Spine. Robert V. Funsten.
6. A Simple Apparatus for Administering Oxygen. Alvan L. Barach.
7. Shell Fracture of the Sline and Changes in Kidney and Bladder Function: Further Observations. Robert E. Cumming.
8. The Serum Prophylaxis of Measles. Morley D. McNeal.
9. Basal Metabolism and Ideal Weight and Pulse Ratios as Shown by Findings in More than Twenty-Five Hundred Observations on About Twelve Hundred Subjects: A Preliminary Report. Anne Peterson and Will Walter.
10. Butyn, a New Synthetic Local Anesthetic: Report Concerning Clinical Use—Special Report of the Committee on Local Anesthesia of the Section on Ophthalmology of the American Medical Association. Albert E. Bulson, Jr.
11. A Fatal Case of Acute Articular Rheumatism. Morris Dinnerstein.
12. A Case of Osteomyelitis of the First Lumbar Vertebra. George Braunlich.
13. Return Flow Urethral Irrigating Tip for Anterior Urethra or Bladder Irrigations. Daniel E. Shea.
14. Method for Anchoring Radium in Carcinoma of the Large Bowel. J. Rawson Pennington.
15. Epithelioma of the Lip. Elmer D. Twyman.

1. Bone and Joint Changes in Congenital Syphilis.—Leon H. Dembo, Harry R. Litchfield, and John A. Foote observe that the pathology of the bones in congenital syphilis has been less emphasized, though not of less common occurence and importance than rash, snuffles, rhagades, eye changes, hutchinsonian teeth and a visceral changes. Bone lesions present themselves in a variety of forms. Probably the most frequent of these are epiphysitis; osteitis; painless hydrops articuli; periostitis, including dactylitis, and changes in the skull, such as craniotabes, thickening of the parietal and frontal bones with softening, known as caries sicca. In the differential diagnosis of various syphilitic bone lesions a number of conditions must be considered. Acute epiphysitis (Parrot's pseudoparalysis) must be differentiated from (1) Erb's paralysis, (2) scurvy, and (3) acute poliomyelitis. The first condition appears shortly after birth and the palsy is characteristic. Scurvy occurs usually in later infancy, the feeding history is suggestive, tenderness and swelling are marked, there is bleeding from the gums, and the roentgen ray examination reveals a subperiosteal hemorrhage with the characteristic "white line." Regarding poliomyelitis, in an infant under six months, the age itself suggests a syphilitic process. Acute osteitis of the tibiæ with saber deformity is to be differentiated from a similar deformity due to rachitis. The former is a curve due to periosteal new formation and thickening of the bone, while the latter is a curving of the bone due to a deficiency of calcium and phosphorus. Rickets is rarely present in the bones during the first few months of life.

Syphilitic epiphysitis and osteitis are seen at an early age. The ribs are rarely affected in syphilis and commonly in rickets. Syphilitic bone enlargements have a tendency to involve the shaft by periosteal implication; rachitic enlargement is usually limited to the epiphyses, and there is seldom pain or tenderness except in acute cases. The periosteal thickening and tendency to involvement of the shaft aids in differentiating syphilitic from tuberculous bone lesions. In the latter there is usually surface ulceration of the bone, with localized thickening of the bone around the ulceration. Other conditions involving the bones which have to be differentiated from those of syphilis are infections and Still's disease. The writer's observation bear out those of other clinicians to the effect that in some cases of hereditary syphilis the Wassermann reaction may be absent, and rather emphasize the importance of the contributory evidence of syphilitic bone disease which may be furnished by the *x*-ray. They also bear out Hochsinger's observation that in practically every infant dying of syphilis gross bone lesions could be observed.

8. The Serum Prophylaxis of Measles.—Morley D. McNeal, in a short series of cases, presents convincing evidence of the efficacy of serum from patients convalescing from measles. Sixteen children exposed to measles received intramuscular injections of 5 c.c. of serum obtained from healthy donors between the fifth and ninth days after the disappearance of the fever. Twelve of the sixteen children injected remained free from measles, and four developed a mild form of the disease. One child contracted measles two months after successful injection; this suggests that the immunity does not persist longer than sixty days in some cases. The method recommends itself most highly for the prevention of measles during the period of danger, between the ages of five months and six years, in tuberculous children, and in those below normal. McNeal also recommends that the procedure be used in institutions in which large numbers of frail children are intimately associated.

9. Basal Metabolism and Ideal Weight and Pulse Ratios.—Anne Peterson and Will Walter make a preliminary report on more than 2,500 observations on about 1,200 subjects. This research was undertaken to determine the following points: (1) The reliability and possibility of errors in the technique employed. (2) Whether the assumed interrelation of weight and thyroid activity is warranted; *i.e.* to study the possibility of diagnosing thyroid dysfunction by the weight of the subjects before one. (3) To check up on the ratios of pulse rate and basal metabolism in order to find, if possible, what might be the probable diagnosis from the determined pulse rate of the subject. (4) Similar relations of blood and pulse pressure, which also seemed desirable. They have reached the general conclusions that the basal metabolism test is necessary for diagnosis and for therapy. Its determination by tried out portable apparatus is reliable. The test is best made at the bedside of the subject, and the portable apparatus makes feasible its use in the home when a proper technique is employed. The mass of evidence is against weight being influenced to any considerable degree by thyroid activity alone as evidenced by basal metabolism tests. Obviously, in some cases the thyroid is the hormone at fault; but the promiscuous employment of any thyroid therapy is dangerous, and had best be done under basal metabolism control. It seems fairly established that pulse rate and basal metabolism are closely associated generally. It seems evident from the observations as a whole that a pulse rate over 82 in men or 90 or over in women in a resting state is cause for suspicion of hyperthyroidism, and that a basal metabolism test is indicated for final judgment and is likely to show plus. Several observations have shown that when the pulse rate drops from a high normal in action to a normal or low "basal" rate, the basal metabolism is most likely to show normal or low.

10. Butyn, a New Synthetic Local Anesthetic.—Albert E. Bulson, Jr., presents this special report of the Committee on Local Anesthesia of the Section on Ophthalmology of the American Medical Association, in which the following conclusions are drawn: (1) Butyn is more powerful than cocaine, a smaller quantity being required. (2) It acts more rapidly than cocaine. (3) Its action is more prolonged than that of cocaine. (4) According to the experience of the members of the committee to date, butyn in the quantity required is less toxic than cocaine. (5) It has no drying effect on the tissues. (6) It produces no change in the size of the pupil. (7) It has no ischemic effect and therefore causes no shrinkage of tissues. (8) It can be boiled without impairing its anesthetic efficiency.

The Lancet.

January 14, 1922, ccii, 5133.

1. Some Obscure and Rare Pulmonary and Pleural Conditions. Robert Hall.
2. An Address on the Erect Posture. J. Knox Thompson.
3. Duodenal Ulcer in Infancy. Donald Patterson.
4. Symptoms and Frequency of Ulcer of the Lesser Curvature of the Stomach. Knud Faber.
5. Percussion and the Width of the Heart. W. Gordon.
6. The Mental Factor in Visceroptosis. W. H. B. Stoddart.
7. Some Points in the Examination of the Heart for Life Assurance. Frederick W. Price.
8. Hemosalpinx and Pyosalpinx with Torsion of the Right Fallopian Tube. W. Gifford Nash.

1. Some Obscure and Rare Pulmonary and Pleural Conditions.—Robert Hall mentions seven conditions as being the most interesting that he has experienced in the 35 years that he has been interested in the diagnosis and treatment of pulmonary conditions. The first two conditions are those simulating pneumothorax and only met in advanced phthisis. In the first of these the simulation of pneumothorax was due to the pleura being everywhere adherent, the upper lobe being excavated to the pleura, a valvular action of a damaged bronchus permitted air to enter but not to leave the cavity. The side became an air-sac which, preventing collapse of the ribs, gave the physical signs of pneumothorax. The second condition simulating pneumothorax was a ballooning of the lung. Hall has seen a number of these cases, and though the physical signs may justify the diagnosis of pneumothorax, they may all be transitory and clear up in 24 hours. A third condition is broncho-pleural fistula. As it is impossible to tell where the rupture may be situated, and as it is a question of relief, not cure, this class of patients may be made more comfortable by aspiration than by any other form of treatment. Occasionally a case of pleural effusion is encountered in which vocal fremitus is still present and a large bronchial breath sound can be heard all over the side. The pleural cavity must be full in these cases. In a case presenting this picture on the third day after aspiration there was a suspicion of air in the pleura, and on the fourth day a splash was quite distinctly heard. At autopsy at least four quarts of fluid flowed out of the right side. The lung was tested and no leak found. The question is raised whether it might have been that the inspiratory pressure of the air was greater than the resisting power of the lung and pleura, permitting the air to diffuse slowly into the pleural sac. A fifth condition is interlobar effusion, which it is important to keep in our mind's eye. The sixth condition is loculation of fluid or pus which is frequently very puzzling. Cases are cited which show how constitutional trouble may be caused by a very small quantity of pus or fluid under tension, and the value of using the aspirating needle, boldly, if necessary, when there is reason to think fluid exists. The last condition discussed is a type of acute congestion of the lungs which, in the writer's experience, is very rare. The chief symptoms are a sensation of tightness about the chest, temperature a little over 100, pulse about 100, breathing faster than normal but not hurried, a short cough, and uniform impairment of resonance, with râles over the whole lung from apices to bases. Possible causes of this condition are discussed and the conclusion reached that it is a primary acute congestion of the lungs, attacking without apparent cause, of short duration, and always fatal in two or three days. In four cases of this kind coming under the writer's observation secondary causes, such as edema of the lung, back pressure from cardiac disease, abnormality of kidney function, new growths, and inflammatory trouble in the lung, could be excluded.

5. Percussion and the Width of the Heart.—W. Gordon states that, in spite of the insistence of many able observers for many years on the value of digital per-

cussion in determining the width of the heart, supported by careful post-mortem verification, it has recently been suggested that percussion has no such value. It has also been stated, and even officially laid down in instructions to medical boards, that the size of the heart can be more exactly determined in the recumbent position than in the upright. As he regards the first statement as a grave retrogression in cardiology, the outcome of defective percussion, and the second as contrary to recently established fact, it has seemed to him important to devise some means of immediate verification or correction of our percussional estimates of the heart's width. The *x*-rays obviously lend themselves to this purpose. The cardiac limits of dullness to right and left are carefully ascertained and marked on the skin with a pencil. Over these marks short pieces of wire are placed and fastened to the surface with adhesive plaster. The chest is then screened and photographed. The results enable Gordon to say: (1) That in the erect position it is possible by percussion to define the rightward and leftward limits of the heart with sufficient accuracy to make this means of diagnosis at least as valuable as it has always been considered, and (2) that in the recumbent position no such accuracy can be obtained—indeed, no accuracy at all, since the results of perussion fall far short of the true width. The statements which the writer has repeatedly published on this subject are fully borne out by radiography. Certain precautions are necessary, however, in photographing such cases: (a) The patient must stand quite square to the plate; (b) the chest must not be allowed to press against the back of the screen; (c) in the case of women with much mammary tissue the attachment of the wire is difficult, and for purposes of investigation such patients have been avoided.

British Medical Journal.

January 14, 1922, i, 3185.

1. Specific Sensitiveness and Anaphylaxis. H. H. Dale.
2. The Diagnosis and Treatment of Intrathecal Tumors of the Spinal Cord. William Thorburn.
3. The Value of Freedom and Exercise After Operations. R. P. Rowlands.
4. The Treatment of Tuberculosis with Colloid of Calcium. Edward E. Prest.
5. Postoperative Hemorrhage. Freeland Fergus.
6. Antimony in Leprosy. G. H. Wildish.
7. The Antenatal Treatment of Congenital Syphilis with Salvarsan and Mercury. John Adams.
8. A Case of Meningitis Simulating Tetanus. L. S. Fry.
9. Esophageal Pouch. Alexander Brownlee.
10. Labor Complicated by Malignant Growth.

1. Specific Sensitiveness and Anaphylaxis.—H. H. Dale presents a theory which he believes explains specific idiosyncrasies such as hay fever, many cases of spasmodic asthma, and specific urticaria, and is the only one that brings the facts of clinical experience into coherent relation with those of laboratory experiment. The experimental basis of his conception must be sought in anaphylaxis, which is not to be regarded as a weakened resistance to a natural poison, but rather a condition produced by previous introduction into the system of a foreign protein, in which the same protein, but not any other, acts on subsequent injection as an acute poison, whether it has normally any poisonous properties or not. A satisfactory interpretation of the facts of immunity and anaphylaxis would be provided by the supposition that the antibody must get out of the blood and into the living cells of the tissues before it can render the animal sensitive. On this supposition the occurrence in the living cell protoplasm of an aggregation of its colloidal particles, of a reaction analogous to the precipitin reaction of an immune serum, as seen in the test tube, would constitute the poisonous action. The fact that an animal is violently and even lethally poisoned by a normally innocuous protein would be explained by the fact that an antibody, which in contact with that protein forms a precipitate, is located in the cells of vital organs. A characteristic of the anaphylactic reaction, in the guinea-pig especially, is stimulation of plain muscle. If the effect is due to antibody fixed in the cells, we ought to find that the plain muscle of an actively anaphylactic guinea-pig, removed from the body and freed from all blood, will respond by contraction to application of the protein to which the guinea-pig was sensitive, but not to any other. We ought to find that plain muscle from a guinea-pig rendered passively sensitive behaves in the same way, and that the same antibody as conferred the sensitiveness, if present in excess in the fluid surrounding the plain muscle, will protect it from the protein to which it has been made sensitive, so that it no longer responds. Another condition which we ought to be able to illustrate by such experiments is desensitization, which must be clearly differentiated from immunity. It is very simple to demonstrate all these phenomena on a slip of plain muscle taken from the guinea-pig after death. Dale traces the points of similarity in hay fever and asthma in man to the condition of artificial sensitiveness or experimental anaphylaxis in animals. Some of the differences, he believes, are due to the fact that we do not, by experimental procedures, succeed in producing such extreme sensitiveness as that which appears in certain human patients. Time alone will show what proportion of cases of hay fever, asthma, and urticaria will ultimately be referable to anaphylaxis. At present the tendency is for the proportion to increase, as investigators gain experience in the application of the specific tests, and have a growing range of animal and vegetable proteins available for use.

2. Diagnosis and Treatment of Intrathecal Tumors of the Spinal Cord.—William Thorburn considers certain aspects of this subject which, though familiar to the neurologist, are not so well known as they ought to be to the body of the profession. After considering certain features on the negative side of the diagnosis, he emphasizes the diagnostic importance of a history of *pain* long precedent to paraplegia, of varying intensity and associated with remissions, which may not be localized in the back but extend vaguely along one or more spinal segments. Such pains are almost invariably present as early symptoms of intrathecal tumors. The writer has traced back their history to as long as two years before any paraplegic symptoms were noted. They may or may not be associated with paraesthesia or with a certain amount of anesthesia. They may be bilateral or unilateral. They are generally described and treated as "rheumatic" or may be regarded as due to visceral disease, as in one case in which an eminent surgeon advised operation on the gall-bladder and the writer removed an intraspinal growth. In the localization of the level of the growth it is not sufficient to accept the upper limit of what may be called gross anesthesia. The line of limitation is often very ill defined and only careful and repeated examinations will enable one to find it. Symptoms closely simulating those of tumor of the cord may arise from excess of cerebrospinal fluid, thickening of the arachnoid, "matting of the nerve roots," and compression of the cord. In doubtful cases, which are not obviously hopeless, exploration is more liable to do good than harm should a diagnosis of intrathecal tumor prove incorrect. There is strong probability that many cases of transverse myelitis may be arrested and cured by incision and drainage of the dura mater—a possibility fully in accord with the view that such myelitis is often due to infection spreading along the spinal nerves and then necessarily crossing the meninges and the intradural space before the cord itself is attacked and irretrievably damaged.

Wiener klinische Wochenschrift.

December 22, 1921, xxxiv, 51.

Experimental Tar Cancer.—Lipschütz obtained positive results in 45 per cent. of his cases of mouse inoculation with coal-tar pencilled on the skin. Often the skin inflamed but necrosis was not seen. The period of latency was from 88 to 112 days. The initial manifestation was a small pin-head sized lesion which when followed up showed more than one form of behavior. In some cases a wart-like growth developed, in others a papilloma with both broad and pedunculated attachment, and these again showed differences of surface—as granular or fissured or with finger-like projections. The author succeeded in transplanting these formations into other animals, the period of taking being about 19 days. A tendency to form secondary nodules on the skin without inoculation was noted in some of the mice so that one could speak of "mother" and "daughter" nodules. It seemed immaterial whether these grew in the immediate neighborhood or at a considerable distance. The lesions were usually small and superficial.

Book Reviews.

DIE LUNGENTUBERKULOSE IN RONTGENBILDE. Von Dr. MAX COHN, Leitender Arzt der Röntgen-Abtheilung am städtischen Krankenhaus Moabit, Berlin. Leipzig: J. A. Barth, 1921.

THIS small brochure of 48 pages is No. 2 of the Tuberkulöse-Bibliothek, a series of volumes which are supplements to the *Zeitschrift für Tuberkulöse*. There are 10 text figures and three plates, which comprise 12 individual radiograms, a total of 22 illustrations. There is neither preface, table of contents or index. The text contains a brief introduction, a section on technics, sections on miliary tuberculosis, lung cavities, apical lesions, pleurisy, therapeutic pneumothorax, progress of the disease as shown by radiograms (including arrest and recovery) and, pulmonary tuberculosis in children. There is very full explanation of the plates.

LA FUNCIÓN DE LOS CUERPOS AMARILLOS. By ARMANDO F. QUINTERRO (Buenos Aires) Tesis de Doctorado en Medicina. Buenos Aires: Luis L. Gotelli, 1921.

THIS is a book of 190 pages from the pen of a graduate of chemistry, and professor of microbiology of the National University. The chief chapters are devoted respectively to histogenesis of the corpus luteum, physiology of the same, experimental proofs of internal secretion of the corpora, Fraenkel's theory, puberty and ovulation, menstruation, pregnancy, correlation of glands of internal secretion, biological chemistry, experimental action of extracts of the corpus luteum, isolation of its active principles, and protocols of the author's own investigations. He finds active principles extracted by chloroform which influence the growth and also determine congestion of the uterus and vagina, but which are without influence on the ovary or mammary gland and exert no constant action on the external genitals. There are also acetone-soluble substances which exert no action on the genital organs but have an influence over the adrenals. Both groups of active principles are vasodilators. These activities are exerted in intravenous and intraperitoneal exhibition, but apparently not otherwise.

INFEKTION UND IMMUNITÄT. Von Dr. M. LOEWIT, weil. o.ö. Professor der allgemeinen und experimentellen Pathologie an der Universität in Innsbruck. Nach dem Tode des Verfassers herausgegeben von Prof. Dr. GUSTAV BAYER. Price M.80. Berlin & Vienna: Urban & Schwarzenberg, 1921.

THIS work was completed by the author and was ready for publication in 1914 but its appearance was prevented by the outbreak of the war. During the war the author attempted to keep it up to date and at the time of his death in 1918 much of the manuscript was ready for the printer. The editor has added but little to the work as then written and it is almost wholly the production of Loewit. It was originally intended to be part of a work on general pathology. It consists of a satisfactory presentation of the subject of immunology as a whole but suffers in comparison with other modern works in that there is very little reference to the literature since 1914 and practically none to that of the last three years. It does contain the results of the author's own work in this field and to that extent bears the stamp of originality. As a whole however it may be classed as a fairly good text-book on the subject which is at least three years old at the time of its publication.

PENNSYLVANIA HOSPITAL UNIT IN THE GREAT WAR. By VARIOUS WRITERS. Price $5. New York: Paul B. Hoeber, 1921.

THIS volume constitutes a complete record of the organization, preparations for departure, activities in France and return trip of the Pennsylvania Hospital Unit, which functioned in France as No. 16 General Hospital (Base Hospital No. 10) from 1916 until the signing of the Armistice. In all, the unit cared for about 50,000 sick and wounded soldiers. Attention is called to the fact that the Pennsylvania Hospital was the first hospital in Pennsylvania to be selected for a Base Hospital, and most justly so since it is the oldest hospital in America and cared for the sick and wounded in all wars in which the country has been involved. Among those who have contributed to telling the story of the unit are Colonel Richard H. Harte, who describes the organization and mobilization of the unit; Margaret A. Dunlop, who relates the story of the nursing corps of the unit; John H. Gibbon, Edward B. Hodge and John B. Flick, who describe the work of surgical teams in various British Casualty Clearing stations. Other contributors to the volume are Lieut. Co. William J. Taylor and J. Clifford Rosengarten. Fifteen hundred and five copies of this book have been printed from type and the type distributed. This record is one in which the Pennsylvania Hospital and the members of the unit may well take pride, and one that will be read with interest by all those connected with the medical and surgical activities of the war.

VERÖFFENTLICHUNGEN DER ROBERT KOCH-STIFTUNG ZUR BEKÄMPFUNG DER TUBERKULOSE; herausgegeben vom Vorstand der Stiftung; Band II, Hft. 3. Price, 48 Marks. Leipzig: Georg Thieme, 1921.

THE first two articles in this issue are by Prof. Dr. Georg Lockemann and deal exclusively with the morphology and biology of the tubercle bacilli. He speaks of the influence of the various culture mediums on the growth of the tubercle bacilli and draws an interesting conclusion from his experiments. This is that the concentration of one culture medium did not influence the growth of the bacilli, but that, on the other hand, with the increase in quantity of the substance used as culture medium, whether concentrated or diluted, the growth of the bacilli augmented. Another interesting article in this issue is by Professors Jos. Koch and B. Möllers, on the method used in their experiments to determine the rapidity and direction of the tuberculous infection. When the bacilli were injected in the small intestines the tubercle bacilli were found after one hour and a quarter in the blood of 60 per cent., in the liver in 40 per cent., in the spleen in 50 per cent., and in the mesenteric glands in 80 per cent. On the other hand, when the injection of bacilli was made directly into the stomach, the infection was so relatively rare that it would seem that the gastric juice either kills the bacilli or at least impairs their virulence. Dr. Bruno Lange, an assistant at the Koch Institute, describes a number of acid-fast bacilli, non-tuberculous but closely related to Koch's tubercle bacillus. Dr. E. Rumpf describes his methods of finding the tubercle bacilli in the blood and maintains that their presence can be demonstrated not only in miliary tuberculosis but also now and then in ordinary types of pulmonary tuberculosis. Dr. Kurt Stromeyer discusses the treatment of various kinds of surgical tuberculosis by x-rays and arrives at the conclusion that although heliotherapy is certainly followed by the best results in surgical tuberculosis, it is by no means infallible and x-rays should be considered a valuable adjuvant. He further maintains that if patients could be cared for in the clinics of large cities for a long period of time and the home environments be improved to correspond with the comforts and hygienic and sanitary conditions as found in the sanatorium, the results of x-ray treatment in surgical tuberculosis would approach those obtained with heliotherapy in special health resorts.

OM BLÖDNING VED PLACENTAS LÖSNING, et Klinisk Arbeide av TRYGVE HESSELBERG. Kristiania: Steenske Boktrykkeri, 1921.

THIS volume of 180 pages consists of two parts, the first devoted to post partum hemorrhage due to detachment of the placenta and the second to premature detachment of the normally inserted placenta. The first is a phenomenon of the third stage of labor, while the second part does not touch upon placenta previa. The author gives tables of 63 cases of post partum hemorrhage due to placental detachment and in a special table of 42 cases of eclampsia shows the amount of blood lost which varied from 20 cm. to 1700 cm., the average being 300 cm. In a series of 1000 miscellaneous labors the loss of blood was less than 100 cm. in about a third and less than a pint in over 83 per cent. In 11.4 per cent. it was between a pint and a quart and in about 5 per cent. more than a quart. In the second part there is a series of 35 case histories of premature detachment of the normally situated placenta.

Society Reports.

MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Stated Meeting, Held December 23, 1921.

THE PRESIDENT, DR. GEORGE GRAY WARD, JR., IN THE CHAIR.

Symposium on Infection of the Gastrointestinal Tract in Relation to Systemic Disease. Medical Viewpoint with Special Reference to Classification of Cases. The Importance of Advanced Bacteriology and Biochemistry.—Dr. GEORGE REESE SATTERLEE read this paper, in which he asserted that there was no such thing as a "medical case" in gastrointestinal diseases. Every patient should be studied by the surgeon and internist conjointly. Most cases needed minor surgery of some sort, but few needed major abdominal operations. Infection played an important rôle in every case. In the past and still, unfortunately, in the present, many abdominal operations had been disappointing, due to the fact that focal infections in the teeth, tonsils, mouth, and elsewhere in the body had been overlooked, or to a disregard of the fact that the abdominal pathology might itself constitute a focal infection and require further investigation. Morphological defects in the gastrointestinal tract should be studied from the bacteriological standpoint. When the stomach or duodenum were involved, cultures from the contents removed through the duodenal tube, according to the fractional analysis method, were frequently of value, not alone for the diagnosis but for vaccine therapy. Cotton and Satterlee had noted the high bacterial content in gastric contents that were deficient in free hydrochloric acid and also the converse. After a course in autogenous vaccine or serum therapy, the gastric contents had in many cases returned to normal. The medical treatment of chronic intestinal toxemia consisted of diet, massage, hydrotherapy, and vaccine or serum. The diet consisted of animal protein-free food, principally vegetables, fruit and cereals. The diet at first was very strict, no eggs and little milk being allowed. Bran was an essential article, one to two ounces being given daily. Where the food was dry and hard agar was given in the food, a liberal diet was permitted and encouraged, but it was often wiser to underfeed rather than overfeed. All laxatives and cathartics were forbidden. Castor oil, enemata, and colon irrigations were only given when specially indicated. Colon massage was of great value. Its use should be systematic. Hydrotherapy in the shape of eliminating cabinet baths followed by Scott's douche helped the physical welfare of the patient. Electro- and mechanotherapy were also of great value. It must be constantly borne in mind that the constipation in most of these cases was of toxic origin, probably protective, and it was probably for that reason that laxatives and cathartics were harmful. It was with this idea in mind that they had practiced vaccine and serotherapy. The routine procedure for the colon vaccines was to obtain the stool after a purgative dose of castor oil. The third stool was preferable. These vaccines were given every four days in doses of from 100,000,000 to 300,000,000, depending upon the general reactions. For the serum they were using they were indebted to Dr. Cotton's researches. It was obtained from a horse that had been immunized by the various strains of streptococci and colon bacilli obtained from cultures from infected foci in the patients at the New Jersey State Hospital. His own results with this serum had been very gratifying in the few cases in which it had been given. Of other therapeutic agents generally employed there was little to recommend. Their clinical experience seemed quite in sympathy with Rosenow's theory of the selective action of bacteria, so much so that they used it as a working premise. This lead followed directly into a most important field, that of *preventive surgery of the mouth.* The removal of obvious foci, provided the remainder of the digestive tract was free from focal infection or permanent changes, would frequently clear up the intestinal symptoms and restore, without further intervention, the physical and mental equilibrium. From a study of over 1000 chronic intestinal invalids, medically treated, and of over 200 similar patients in whom a portion or all of the colon had been removed, they had come to the belief that many of these advanced cases with infected colons would not recover until the diseased portion of the organ was removed together with every other local focus. Medical treatment with vaccines and sera was needed in every case. After discussing the routes by which gastrointestinal infection might take place, Dr. Satterlee said it had become his belief, based on a prolonged study of chronic intestinal toxemia, that the colon bacillus, perhaps the pathogenic forms only, was the primary cause of the lowered resistance found in these cases and that other types of bacteria, notably the streptococci, were secondary infections. This view was based on the study of over 500 cases of chronic intestinal toxemia treated by autogenous colon vaccines obtained from stools after catharsis. A suitable case, one with symptoms and signs of a chronically diseased cecocolon, would invariably improve after the administration of autogenous colon vaccines, and also, as they had discovered lately, of an anticolon and antistreptococcus serum, prepared under the direction of Dr. Cotton. These principles were applicable to other diseased conditions as, for example, in syphilis, Cotton had observed chronic cases that could not be improved until the obvious foci of bacterial infection were removed. One of the most puzzling aspects of gastrointestinal infection was that it might produce the most profound mental or nervous disturbances with little or no direct gastrointestinal pathology. The writer had called attention to this fact in 1917. Careful neurological study of these patients would reveal no etiological factor until a complete study of the gastrointestinal tract was carried out and a thorough search for foci in other parts of the body had been made. Eradication of the diseased areas had brought about a return to normal or a great improvement, provided deterioration had not progressed too far. The organisms noted in 80 cases where dental extraction and bone operations were performed were tabulated. It was thus shown that the most frequent streptococcic organisms recovered were the *Streptococcus mitis* and *salivarius* of nonhemolytic type. Next in frequency were the *Streptococcus angiosus* and *pyogenes* of hemolytic type. *Streptococcus subacidus* and *equi* had not as yet been found in their cases. Cultures from the antra, directly on opening through the mouth, corresponded quite closely to the cultures from teeth and bone.

Neurological Viewpoint with Special Reference to the Relation of Clinical Symptoms to the Regional Distribution of Focal Infections.—Dr. HENRY A. COTTON of Newark, N. J., presented this contribution, in which he stated that in presenting a psychiatrist's viewpoint of the relation of focal infections to systemic disorders before an audience of general practitioners, one must at the outset disabuse the mind of the physician of the time-worn theories regarding the psychoses. One of the most prevalent errors as to the causation of psychoses was that of heredity. This fact arose from the rather loose way in which records of heredity were gathered in the old state hospital statistics. Any patient in whom there was "insanity in the family" was noted as suffering from hereditary taint. This occurred in sufficient numbers to substantiate the opinion that the psychoses were hereditary in origin. It was needless to go into the various arguments from a biological standpoint to show that this theory was erroneous. Not only were we in serious error regarding heredity, but such a doctrine was extremely fatalistic, for if a patient was born with the potential elements of mental disorder, then there was little use in trying to prevent the psychosis, or to successfully arrest it if it had appeared. The result of five years' intensive study of the hereditary factors in the psychoses led the writer to the belief that while we might not eliminate the hereditary taint entirely, at the same time it should not be given the exalted position it had previously held. As it had no bearing on the prognosis of a given case he believed that discussion at present was merely academic. Another error was with reference to psychogenic factors. For many years the psychiatrists, in common with the profession at large, voiced the opinion that the psychoses were purely mental disorders caused entirely by hereditary insta-

bility, plus psychogenic or mental factors. The physical condition of the patient was absolutely neglected. This gave rise to the fundamental error in that they assumed the psychoses to be diseases of the mind caused by mental factors almost exclusively. With an improvement in the methods of studying brain tissue and the results of their work of the last four years, they had slowly arrived at the conclusion that the so-called functional psychoses were in reality caused primarily by disease of the brain and not of the mind, and that the mental disorders were merely symptoms of a diseased brain. This did not mean that they minimized the part played by such psychogenic factors as grief, worry, anxiety, shock, and a host of others that undoubtedly played an important rôle in precipitating the psychosis. Their investigations in the last four years had shown conclusively that the psychotic individual harbored multiple foci of infection which often could be located and eliminated only with the greatest difficulty and persistence on the part of the physician. In order to properly locate and eliminate these multiple foci of infection the psychiatrist had had to call to his assistance the specialist in other branches of medicine so that to-day a well-equipped clinic for nervous and mental disorders was only adequate in so far as this principle was carried out. The so-called functional psychoses they believed to-day to be due to a combination of many factors, but the most constant one was the intracerebral, biochemical, cellular disturbance arising from circulatory toxins originating in chronic focal infection situated anywhere throughout the body and probably secondary to disturbance of the endocrine system. The psychosis then, instead of being considered a disease entity, should be considered as a symptom and often a terminal symptom of a long-continued masked infection, the toxin of which acted directly on the brain. If the profession at large could accept this viewpoint, which he and his coworkers felt had been demonstrated beyond a reasonable doubt, then their attitude would be changed from the hopeless fatalistic one, previously in vogue, to a hopeful one wherein they themselves could not only arrest many cases after a psychosis had developed but, better still, might prevent their development by elimination of chronic foci of infection. They had found that the source and type of chronic infection in the psychotic patient was the same found in many of the systemic disorders. They were of the opinion that the methods adopted by them were extremely valuable in ridding the patient of multiple foci of infection until better methods were devised. They had come to regard infection of the teeth as the most constant focus found in their patients. Without exception the functional psychotics all had infected teeth. While the progressive men and leaders of the dental profession were awake to the various types of infection to be found in and about the teeth, unfortunately the rank and file were not sufficiently acquainted with these many forms, consequently the physician who attempted to rid his patient of focal infection must become acquainted with modern dental pathology. In their younger patients, from 16 to 20 years of age, no matter what the psychosis that might be diagnosed, they found unerupted and impacted third molars in a large proportion of the cases, and they would unhesitatingly advise, when there were clinical evidences of systemic infection and intoxication present, that these should be removed. They had found these teeth always infected and the infection was in some way related to the fact that the tooth was unerupted and impacted. All crowns and fixed bridge work had been condemned by the best men in the dental profession, and they voiced the same opinion. In order to rid a patient of focal infection a very thorough job must be done and no suspicious tooth allowed to remain; this did not mean that every patient should have all his or her teeth extracted. The removal of foci of infection in the tonsils was equally important. It was a striking fact that very rarely was a patient admitted to the State Hospital at Trenton whose tonsils had been previously removed, so that over 90 per cent. of the patients had to have their tonsils enucleated after admission. Whatever might be the effect of treating infected tonsils with the *x*-ray or local therapy they felt that to-day enucleation was the only method permissible. From the fact that the elimination of infected teeth and tonsils produced marvellous results in some cases and in others no results whatever, it was logical to conclude that the infection had spread to other parts of the body, through either the lymphatic circulation or the blood stream, and probably by the former. Secondary infection of the stomach and lower intestinal tract could also come from constantly swallowing the bacteria originating in the mouth. The genitourinary tract was frequently infected, not only by organisms of the streptococcic group, but by those of the colon group as well. In the females they had found that at least 80 per cent. had a chronic infection of the cervix uteri, and rarely the body of the uterus, but more frequently the adnexa were involved. In the males a certain percentage of the acute psychoses had an infection of the seminal vesicles. The prostate and bladder, as a rule, were not involved. Speaking of the results of their work, Dr. Cotton stated that in the so-called functional group which included dementia præcox, manic depressive insanity, paranoid conditions, and psychoneuroses, for a ten-year period prior to 1918 the recovery rate was only 37 per cent. of the admissions. Since 1918, when the methods described had been put into effect, the recovery rate had averaged 70 per cent. in the same group. In 380 cases classified in this group in 1918 only 50 to-day remained in the hospital and nine of these were criminals. A recent survey of these 380 patients discharged since 1918 showed that after three years, with few exceptions, they were today normal in every respect. Over 1,000 patients had been successfully treated during the past three years, and the proportion of readmissions had not increased during this time. Their failures had been confined to patients with a psychosis of over two years duration. The cause of such failure they considered to be due to the fact that the brain had become permanently damaged and no amount of elimination of infection had any effect on such an individual. In concluding, Dr. Cotton said they had produced evidence, both clinical and pathological, which would set at rest any doubt as to the accuracy of their deductions. The fact that many individuals harbored infections and were not insane was no argument against the doctrine that focal infections could cause insanity. We knew that only a small proportion of patients contracting syphilis developed paresis; only a small percentage of those indulging in alcohol excessively developed a psychosis. One might argue similarly regarding a functional psychosis. The type, specificity, and severity of the infection, plus the patient's constitutional lack of resistance, determined whether or not psychosis would develop.

Surgical Viewpoints—Colectomy—Indications: Technique: (Lantern Slides)—Pathology, Mortality.—Dr. JOHN W. DRAPER discussed this phase of the subject. He stated that from the standpoint of infection of the gastrointestinal tract, that portion of greatest interest in surgical research was necessarily the colon. This terminal portion of the bowel was of much less vital need to the organism than the central portion, was frequently diseased, and could be dispensed with, entirely or in part, alike in human beings and in the lower vertebrates. There was a similarity between the stomach and the colon, particularly as regards their functions, those of storage and motility far outweighing in importance all others. After removal of the stomach in the lower vertebrates and in man it had been found that all its subsidiary functions, as well, apparently, as the two major ones just named, were taken on vicariously by other portions of the tract or indeed largely abrogated. The same was true of the colon. Between the stomach and colon lay the small bowel, a relatively short portion of which was essential for life. Save for the correction of small minor conditions this portion of the alimentary canal was inviolate for surgical intervention. This portion of the alimentary canal was notably free from cancer and infection, while both ends were the frequent seat of malignancy and of bacterial invasion as well. Was it not probable that the law of use and disuse was as applicable to the alimentary canal as elsewhere in Nature, and that we might properly seek an explanation of the well-known clinical fact that the colon and stomach were more liable to degenerative changes than the rest of the alimentary canal. Closely coupled with this was the

universally admitted effect of gravity upon the development of colon pathology. In spite of much recently acquired information regarding the colon, notably the fact that even its entire removal was compatible with health, growth, and development of the individual, its vital function being apparently nil, it could not be too strongly urged that the indications for its removal, either partial or complete, were rarely to be met with, most cases responding promptly to modern medical treatment. However, definite indications for total or partial colectomy were occasionally demonstrable, as was shown by the increasing literature on this very important subject. The subject of colon pathology, particularly in its relation to systemic disease, was at present little understood. This problem was beset with the greatest difficulties from the bacteriological standpoint, and although much was known about the occurrence of colon lesions in individual cases, no proof was as yet available that any particular group of symptoms could certainly be attributed to a given colon pathology. For this reason the record herewith presented of colon pathology found among 150 toxic psychotic patients at the State Hospital at Trenton was of the utmost importance. Before considering a partial or total colectomy in any given instance, it was evident that the indications, historical, physical, and *x*-ray, must be particularly well defined. There must be a long-continued history of chronic intestinal invalidism, with its usual, but not invariable, evidence of chronic appendicitis early in life; with "bilious attacks" and "belly aches"; often with oral infections later on; with the occurrence of right-sided abdominal rigidity and often with tenderness, pain, and superficial hyperesthesia; always with a colonic delay, defined and localized by *x*-ray study. Even in the presence of such findings, such intervention, in the writer's opinion, was not indicated except the also well-defined and serious subjective symptoms. It was now six years since, under the above conditions, their earliest cases were operated upon, and the continued study of these patients not only strengthened their belief in the very important relation of colonic infections to general health, but also afforded interesting ground for belief that in many cases there were personality changes associated with chronic intestinal invalidism, which ultimately became fixed in character, constituting definite toxic psychoses. Every practitioner was familiar with the mental depression which accompanied such invalidism. Mutation from a simple depression to a definite psychosis certainly occurred with sufficient frequency to interest the general practitioner, and to add to his already great burdens that of early physical diagnosis as an aid to preventive psychiatry. Finally, they felt that no patient should be subjected to a colectomy for chronic intestinal toxemia, except upon the collective decision of a medical group, it being, in spite of mortality, a far too serious operation to be decided upon by one physician alone. In the series presented the evidence for operation was based upon ample physical lesions augmented by the presence of a psychosis. The technique employed at the State Hospital at Trenton, for total or partial colectomy, was the direct outcome of the writer's experimental work in intestinal obstruction upon the lower vertebrates, so that for technique as well as for interpretation, the present research was primarily indebted to the laboratory. In 1919, 84 cases were operated upon with 13 deaths, a mortality of 40 per cent. In 1920, 59 cases were operated upon with 18 deaths, a mortality of 30 per cent. In 1921, 77 cases were operated upon, with 10 deaths, a mortality of 12 per cent. In all there was a total of 170 cases with a mortality of 24 per cent. The decrease in the mortality was due to operating on earlier less degenerated cases, and to the employment of serum before and after operation. Dr. Draper exhibited a number of lantern slides illustrating the pathology found in the colon in this series of cases, a number of which showed definite foci of infection in the colon.

The Application of Results Already Obtained at the State Hospital, Trenton, in Relation to the Conduct of Other State Institutions.—BURDETT G. LEWIS, Esq., State Commissioner of Institutions and Agencies for New Jersey, spoke on this topic. He said, in part, that it was naturally very gratifying for him to note the success in New Jersey of work he had undertaken in New York but which for want of time he was unable to carry through to completion. While Commissioner of Correction in the city of New York, he undertook to transplant to the old correctional institutions of the city and to the two new reformatories many of the routines and practices of the best hospitals for the insane. He discovered that many men and women in prison or in the reformatory were either insane or unstable, or were epileptics or feeble-minded, or were not able properly to conduct themselves as normal human beings. He also discovered that the disciplinary difficulties of correctional institutions were almost entirely due to the presence of persons belonging to these various groups who had been sentenced to prison or to a reformatory. By inquiry among the best hospitals for the insane and the best institutions for the treatment of the unstable, the epileptic and the feeble-minded, he found that the disciplinary difficulties of such institutions had not been solved by the club and the gun and by invoking horrible imprecations and profanity, but by the intelligent application of modern therapy and modern treatment, with which physicians had now become quite familiar. The organization of the New Jersey department was such that work which was difficult in New York, where the departments were under separate jurisdiction, was very simple in New Jersey, where all of the institutions were in a single department. This had made the transplantation of the best practices of the particular institution to all other institutions a much simpler problem. For example, for the conduct of the mental and medical work in the correctional institutions, he had organized a psychiatric clinic and placed the doctors and psychologists under the general supervision of Dr. Cotton, who held the position, not only of Medical Director of the State Hospital at Trenton, but also of Acting Director of the Division of Medicine and Psychiatry of the Central Department. This plan had hastened the application of the best tested results of the State Hospital to all the correctional institutions. Cases were discovered in the correctional institutions which were in need of treatment at the hospital, and under the New Jersey law they were transferred to the psychopathic division of the hospital long before they had become insane from the legal viewpoint. The methods of treatment carried out at the Trenton Hospital had shown the desirability of extending the benefits of such medical, surgical, and other treatment to all the population of each correctional institution. In consequence, the medical service and the appropriations for medical service had been more than trebled in all the institutions. The expense, however, had been reduced, by reason of the fact that the psychiatric clinic cut down the cost of overhead supervision of physicians and by reason of the fact that the increase in the amount of medical work in each institution had stimulated cooperation with the physicians of the various communities in which the various institutions were situated. The amount of voluntary work performed by the physician had been more than quadrupled in the past three years. They were therefore deeply indebted to the physicians in practice throughout the State for many of their good results. For instance, in the State Home for Boys, an institution for juvenile offenders, three and a half years ago, one out of each two boys released from that institution on parole failed; since the introduction of the new methods only one out of each ten failed. The development of research work at Trenton had stimulated similar work in other institutions and had won for such institutions legislative appropriations for treatment instead of mere custody of patients. Morris Plains State Hospital, for example, had under course of construction a 400 bed treatment hospital which would permit the carrying out of the very best types of medical treatment at that institution. They were attempting to extend to the people of their various communities the results of these achievements in the institutions, through the establishment of clinics. Without going into detail it would suffice to say that their physicians in their State institutions were to secure the advantages of handling the new cases in the communities long before they would ever reach a State hospital. On the other hand, the patients in the State institutions were to reap the benefit of the enthusiasm of doctors whose efforts were stimulated by contact with mental dis-

ease in the earlier stages of its development. In closing Mr. Lewis acknowledged their indebtedness to men like Dr. John W. Draper, who had so freely given up his time and his expert abilities in the promotion of their work, at no small sacrifice of time and strength. New Jersey was indeed fortunate in securing their help and was proud of the results achieved.

Dr. JAMES EWING stated that he had examined sixteen specimens of colon and ileum removed by Dr. Draper at operation. The great majority of the specimens showed very definite gross anatomical lesions which had resulted from chronic intestinal stasis and the ensuing catarrhal inflammation. In several cases the lesions were extremely marked, in many they were well marked, while in a few there were no definite changes that could be regarded as more than minimal variations from the normal. The most marked and constant lesion was pigmentation of the mucosa which rendered the inner lining brownish or at times dark chocolate in color. This change was most marked in the cecum, diminishing toward the sigmoid but often present throughout the section. Sections showed the pigment to be lodged in large polyhedral cells lying in the mucosa and at times in the epithelium. Pigmentation of the colon was fully recognized as a sign of chronic intestinal stasis and intoxication. It was sometimes associated with anemia and at times with severe and even fatal dystrophies of nervous and muscular systems. Pouching of the intestinal wall amounting almost to hernial protrusions was observed in most of the cases. These pouches were from one to two centimeters in depth. The wall of the pouches was generally thin, sometimes very much thinned, and the mucosa at the bottom was generally eroded, sometimes ulcerated. Through such erosions and ulcerations it was obvious that absorption of fluids and bacteria readily occurred. The usual contents of these pouches must have been fecal matter, and it appeared that such material must have been practically incarcerated and seldom emptied. About the lower end of the cecum the pouches were especially numerous and deep, and access to them was tortuous, especially when external adhesions held the wall of the colon fixed. The outer surface of the colon over the pigmented, and especially over the pouch district, was generally the seat of a chronic productive inflammation with the formation of very numerous small granules of vascular connective or denser fibrous connective tissue. This granular appearance was doubtless exaggerated by hardening in formalin. The loose serous coverings of the colon generally appeared as thin membranes extending from the gut over the mesentery. These coverings often showed diffuse opacities from thickened, abnormal bands and striæ, and occasionally definite cicatricial contractions. To what extent these changes were due to the conditions inside the gut it was difficult to say, but probably they were largely caused by the mucous membrane lesions. The lymph nodes in the mesentery accompanying the specimens were not as a rule enlarged, and often they were small and difficult to find. Sections of the nodes showed no inflammatory reactions of definite importance. It was noted that the lymph follicles were generally invisible in the colon, and were reduced to a trace in the sections. Well formed recognizable Peyer's patches were not found in any case. There was therefore a general atrophy of the lymphoid apparatus inside and outside of the gut. That bacteria were found by culture in the lymph nodes of the mesentery could have been confidently predicted on the lesions of the mucosa and the lymphoid atrophy. In general, the impression gained from the study of these specimens was that the clinicians were dealing with extensive and somewhat unusual grades of chronic intestinal stasis and catarrhl inflammation with its sequels. In a few cases the conditions were such as to be practically irremediable except by mechanical straightening of the intestinal lumen. Whether or not extirpation of the cecum was the most direct method of accomplishing this object was a matter of surgical judgment. In perhaps the majority of the cases, and certainly in some, the conditions were not so advanced that emptying of the colon was impossible by lavage or frequent catharsis. Here again the choice of methods was to be regarded as a matter of clinical judgment. As for the specimens of ileum submitted, they failed to show any lesions that would necessarily call for extirpation. The indications for this procedure had to rest entirely on clinical grounds. The isolation of various bacteria from the mesenteric lymph nodes did not appear to have particular significance, since bacteria passed the relatively intact intestinal wall under a great variety of pathological conditions, many of which had no connection with the clinical state of these patients. More important was the demonstration of hernias, pouching, thinning of wall, pigmentation, and ulceration of mucosa, which together formed an impressive anatomical basis for the theory of intestinal intoxication, which undoubtedly existed in severe degree in the cases exhibiting such lesions. Finally, Dr. Ewing said he would venture to express his personal opinion that extirpation of the affected portions of the cecum and colon was justifiable and probably the only effective means of relieving the condition found in the advanced cases, while in others with slight changes the condition could have been met by less radical means. The extirpation of considerable portions of the ileum seemed to him unwarranted if based solely on the anatomical condition of this organ.

Dr. OSCAR H. ROGERS, Chief Medical Director of the New York Life Insurance Company, stated that he had been very deeply interested in the papers which had just been read and believed that the work therein described opened up a field of medicine now too little cultivated. His own professional life had been spent almost entirely in life insurance medicine, in which the mortality rates among insured lives at various ages were matters of the greatest interest, and he had observed during the last 25 years a steadily improving mortality rate at the earlier ages. For example, at the present time the mortality rate at the age of 25 years was 40 per cent. lower than it was 25 years ago. Unfortunately, this striking improvement in mortality was not found at the later ages of life. Indeed, at the age of 55 there had been no improvement at all. It was his opinion that the improvement in the mortality rate at the earlier ages had been due to man's increased control over infectious diseases. This mastery of disease was less and less marked at the later ages and disappeared altogether before the age of 55. He was hoping that the science of medicine, possibly along the lines indicated in the papers of the evening, would presently master those infections that were still causing a high mortality at the older ages. He had come to the meeting with a feeling of skepticism, but was prepared to admit that some portion of that feeling had been resolved by the papers that had just been read. Some things he had heard, however, ran counter to his own prepossessions. One speaker, as he understood him, looked upon constipation as due to the fact that the human animal had assumed, in the course of his evolution, an upright position. Another speaker had referred to it as caused by toxemia. He was willing to accept the theory that the upright position had some effect in producing constipation, but that dental infection, or any other infection, was a clear-cut causative factor he had grave doubts. It seemed to him as if such a doctrine was putting the cart before the horse. He believed, on the contrary, that constipation was very much more often the cause of a toxemia than the effect of it; that the lowered vitality caused by constipation rendered possible the incursion of bacteria in other parts of the body. It must be remembered, he stated, that man was a "house-broken" animal; that from his infancy up the natural impulse to bowel movements was under restraint; that the restraint of clothing, of school, of play and of having to postpone bowel movements for a more convenient time and place, all tended to educate against natural impulse, until presently a daily bowel movement was looked upon as an expression of health, rather than, as it should be, an expression of disease. A single bowel movement a day was not adequate. Among animals in a state of nature, such restraint almost never occurred. We heard a great deal of the splendid work of the surgeons in various operations on the alimentary tract, but we heard too little of the teaching by medical men of proper care of the functions of the alimentary canal, so that the work of the surgeon should be rendered unnecessary. Almost every appendicitis, every gall-bladder infection, was a protest against this neglect of the

bowel function. Only recently he asked his own son, a graduate of a medical school in this city, what they were teaching in his school on the treatment of constipation. He put the same question to a young friend, who had recently graduated from Harvard Medical School. Both stated that these schools were teaching very little. Dr. Rogers stated that he would like to file an indictment against medical schools that taught "very little" on so important a subject, that did not emphasize the fundamental importance of correct bowel hygiene, but left to laxative drugs to complete the mischief which the restraints of civilization imposed. He felt that the proper care of the intestinal tract, if ever it could be widely taught, and the knowledge of it brought home to the people, would very largely do away with the high mortalities of the later years of life. Dental infection and other focal infections were important enough, and he was glad to see them emphasized, but he wished that men who were in a position to speak with real authority would give more attention to those infections which were caused by delayed bowel action alone.

Dr. FENTON B. TURCK quoted from a report from the Woman's Hospital in which Dr. Ward had said that scientific research was very important. He would say that it was all important and that no positive knowledge was obtained except by scientific research. But no one by scientific research had found a single poison from bacteria in the gastrointestinal tract, in the respiratory diseases, or in the nervous diseases. This statement was confirmed by Davis and Rosenthal (America), who had shown that the intestinal flora were without any etiological importance. Blunderhorn admitted some intoxication, but held that it was not of bacterial origin. Gordon, working on respiratory diseases under the direction of the Metropolitan Life Insurance Company, came to the same conclusion. Helmholtz, Gobert (America), Sztark (France), and Balaffo of Italy had recently shown that cellular catabolism was the sole origin of the intoxication. Elis Lorengreen (Finland) had demonstrated that both acute and chronic disorders were due to constitutional factors. Dr. Turck referred to his work which explained what this constitutional factor meant. For the past twenty-five years he had been showing that whenever there was a lowered natural immunity the cellular catabolism that normally occurred might cause disease either of the alimentary tract, or of the respiratory tract, or of the nervous mechanism.

Cellular catabolism was seen in its classical form in tissue injuries such as wounds—and biologists and clinicians argued that traumatic shock was due to disintegration of the tissue. The poison thus formed affected the entire organism. The degree of shock and the variations depended on the degree of natural immunity. Every variety of disease occurred in chronic disorders resulting from tissue breakdown. Dr. Turck stated that he had extracted the tissue poison from the tissues and with it produced diseases of the alimentary and respiratory tracts and of the nervous system as well. He had also produced the tissue antitoxin, and used it in the prevention and cure of these diseases in both animal experimentation and clinical work with most satisfactory results. The active agent from ash produced what he had termed cytost, which excited cell division and metabolism in biological concentration, and he had produced an antitoxin, anticytost, also an ash. Furthermore, with this cytost he had succeeded in producing both active and passive immunity. The methods of colon lavage, of heat stimulation of the splanchnic area, etc., of producing elimination increased natural immunity, and then the employment of vaccine and foreign protein had been shown both experimentally and clinically to be of considerable value, and he was glad to see that this work so far as it went confirmed his own, though he had gone still further, and was now producing specific active and passive immunity to these toxins.

Dr. ANTHONY BASSLER said, taking his cue from Dr. Turck's remarks, that because one could not feel the sun therefore the sun did not exist. We all knew that the entire world depended upon the sun for its existence, though the only means we had for substantiating the existence of the sun was indirect and because of its rays. The probabilities were the time was far distant when we would be able to isolate intestinal toxins in the blood. Dr. Bassler said he wanted to congratulate Dr. Cotton and his coworkers because they had entered into a field which was endless; they had plenty to study as long as they lived. The subject was too big for the Mayo Clinic. They recognized that the intestinal tract might be a most important focus of infection in the body, but even with their material their investigators and their methods of control they had not had the courage to go into this work. Dr. Bassler asked why it was that since there were definitely seven different forms of bacterial invasion one diet and one vaccine served for all. In some a vegetable diet was distinctly contraindicated and in some forms only a high protein diet was efficient. He believed with Dr. Cotton that the gut condition was the primary factor in many endocrine imbalances. He did not understand his remark, namely, that when the focal infection in psychotic individuals had existed over two years the prospect of benefit was not good. These were neurological cases that proverbially gave no gastrointestinal symptoms, though they had infected teeth, or infected tonsils or infected gallbladder. How could one say in these mental disorders that the focal infection had existed for any length of time with any fair degree of accuracy? Dr. Bassler said he did not believe the time would ever come when specificity of organisms would be understood in any etiological connection. He thought it a waste of time and money to go into that study in this connection. There were so many factors influencing the conditions under which one lived that were bound up with the question of intestinal infections and to these must be added the chemistry and motility of the intestinal canal and symbioses of different organisms; a flora of the intestinal canal might change inside of twenty-four hours. If one planned a special diet in a month's time the individual was often as toxic as ever because the organisms in the gut had become facultative. The question, Dr. Bassler said, was a big one and he felt that they had a much greater job yet to do.

Dr. COTTON, in closing, said Dr. Bassler had misunderstood him. He had not said that the focal infections were of two years' duration, but that the psychoses were of two year's duration. The focal infections were undoubtedly of many years' duration. In many cases chronic infections had been producing systemic symptoms for ten or fifteen years. As to diet and the changing of the flora of the intestinal canal, Dr. Bassler had answered that question. We had known for years that mental cases had been subject to gastrointestinal trouble. Diet, massage, etc., had been employed, and in special cases now and then good results were obtained, but not in the mass until they were able to demonstrate that infection was in the walls and in the mesenteric glands, and not in the lumen of the intestine. Proof was found in the fact that if the infection was removed the patients improved. Practically all the chronic cases were associated with colon infection, and it was only by removing infected areas that improvement or cure was brought about. Dr. Turck might doubt toxemia from bacteria being a factor, but if the removal of the colon was followed the next day by disappearance of the mental symptoms, then something had happened. It might be said that he was over-enthusiastic, but when the patients got well and stayed well one could not avoid being a little enthusiastic. Dr. Cotton said the whole question of intestinal treatment was a very large one, and they did not claim that they had solved the problem but felt that light had been thrown on one angle through Dr. Draper's experimental and operative work.

Dr. DRAPER, in closing, said that he did not mean to imply that toxemia had a single origin; he thought it had a triple origin. It might be the result of the breaking down and splitting of food proteins; it might come from a focus of bacterial infection in the mucosa, or, as Dr. Turck said, poisons might come, not from bacteria or food, but from abnormal metabolism of the epithelial cells. It was possible for a toxemia to exist in some cases without our being able to determine its cause.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON SURGERY.

Stated Meeting, Held December 2, 1921.

DR. SEWARD ERDMAN IN THE CHAIR.

Shoulder Girdle Amputation for Sarcoma of Scapula.—Dr. FENWICK BEEKMAN presented this patient, a boy 8 years of age, admitted to the Children's Surgical Wards of the Fourth Division of Bellevue Hospital, on August 7, 1921. Examination showed a tumor involving the scapula. The growth was of about six months duration, had been growing gradually, and was constantly tender. The father stated that the boy had fallen downstairs previous to the appearance of the tumor. Previous to his admission to Bellevue Hospital an incision had been made and a portion of the tumor removed for diagnosis. A large tumor mass involved the outer surface of the left scapula and there was dilatation of the superficial veins in that region. The skin was firmly adherent to growth. The radiologist's diagnosis was osteosarcoma. The child was operated upon on August 27, an interscapular thoracic amputation being performed. Flaps from the anterior and under surface of the arm were used to cover the area left after removal of the arm. At the time of operation the *x*-ray showed no involvement of the lungs. On September 11 the boy was found to have a recurrence at the upper angles of the scar in the skin. The new growth was removed and the boy discharged from the hospital on Sept. 29. Two weeks later he returned with a recurrence in the granulating area of the wound and a metastasis was discovered in the lungs. It was then decided to start *x*-ray treatment. Under this treatment it had been a most remarkable thing to see the metastases fade away. The improvement was especially remarkable in view of the fact that the boy had not come regularly for the treatment. Not only was there a disappearance of the metastases but the boy had put on weight and improved in every way. Dr. Beekman stated that he showed the case because of the rapidity with which the recurrences had disappeared under *x*-ray treatment. He was not treated with radium because it was difficult to get the proper amounts of radium and to place them properly, so it was decided to try the *x*-ray. The pathological diagnosis was round-cell sarcoma, probably periosteal in origin.

Primary Closure of Wound of Chest.—Dr. FENWICK BEEKMAN presented this patient. He said the case was shown because some years before the war he saw a stab wound of the chest packed to control hemorrhage. A defect in the pleura developed which was operated upon several times and he did not know that the man ever got rid of the open thoracic cavity. During the war the surgeons closed many chests primarily, but he did not know whether such wounds were usually being closed in civil life. The patient, a child who had been struck by a fragment of a bomb during a block party, was admitted to the City Hospital September 6, 1921, a short time after the injury, with a temperature of 97°, a pulse of 136, and respirations 36. She had sustained a lacerated wound of the left forearm which fractured the radius and a second wound of the arm which involved the brachial artery and nerve. She also had a large sucking wound of the chest, which had been packed tight. Under ether anesthesia the wound was debrided. Then the incision was carried forward along the fifth rib and four inches of the rib resected. The ribs were retracted and the fragment of the bomb removed together with blood clot. The chest was swabbed out, great care being exercised to remove every particle of blood clot and dirt. There was a small laceration of the lower lobe of the lung. The chest was closed tight, two sutures being carried around the fourth and sixth ribs and the muscles closed over the closure of the pleura; the skin was closed with silk worm gut. The following day there was a subcutaneous emphysema extending up on the neck and down to the abdomen. The signs of hemothorax cleared up within three weeks and the child made a good recovery. Dr. Beekman said he felt that all penetrating wounds of the chest should be closed primarily, because if it was found that they were infected they could be opened later and drained from a more dependent portion of the chest; one lost nothing by having closed the wound and frequently gained a great deal. The child also had a radial nerve paralysis which had not as yet been operated upon.

Dr. CHARLES EVERETT FARR said he had not had an experience just like that of Dr. Beekman, but he wished to congratulate him on his excellent results in this case.

Dr. SEWARD ERDMAN said he was sorry Dr. Beekman had not brought the *x*-ray photographs of the chest as it would have been interesting to see the development of these metastases in such a short period of time. It was possible that the metastases were present before the operation and were overlooked. That brought up the question of the indication for operation in sarcoma of bone, when it had attained the size of this tumor, so near the chest wall and with the probability of lung metastases already present. Dr. Erdman asked Dr. Beekman what type of sarcoma this was.

Dr. BEEKMAN, in reply to Dr. Erdman's question, said that Dr. Symmers thought the growth was a round cell periosteal sarcoma. The sections showed many mitotic figures and cells which stained very irregularly. The slides of the recurrences showed many islands of round cells in the muscles which were excised at the second operation.

Malignancies of the Colon.—Dr. JOHN F. ERDMANN read this paper. (See MEDICAL RECORD, December 3, 1921, c, 23, p. 1006.)

Dr. GEORGE H. SEMKEN said his first impression after hearing Dr. Erdmann's paper, was one of amazement at the large amount of material that Dr. Erdmann had observed in a comparatively brief period of years; and secondly, he appreciated the excellent grouping and plans of treatment that had been followed in these cases. The diagnosis of cancer of the colon was not always so simple as had been believed. Subjectively, the cardinal symptoms of constipation and hemorrhage were not usually present; and the highly suggestive symptom of recurring "teasing" abdominal colics was often mistaken for appendiceal or renal colic. The *x*-ray examination also was by no means conclusive. As between the barium meal and the barium enema, the latter was the more likely to reveal the presence of the tumor. If the malignancy had progressed to the point of causing almost complete occlusion, the barium meal might reveal the obstruction and the dilatation of the proximal segment, especially of the cecum; but the usually associated hypertrophy of the distal segment and the hyperperistalsis of the colon usually caused the meal to pass through even a small lumen without great delay. With the barium enema, fluoroscopic examination and the study of stereoscopic plates had given more definite information. On the other hand, in three cases of cancer of the colon that had come to operation several months after an *x*-ray examination had been reported as negative by competent roentgenologists, a later examination of these plates aided by the surgical knowledge of the location of the tumor, showed definite evidences of the disease at that point, but the filling defect was too slight to excite suspicion at that time, or the diseased segment had taken an antero-posterior axis and was not shown in its lateral outline. So far as the surgical procedure was concerned, Dr. Semken agreed with Dr. Erdmann that the emptying of the bowel was an essential preliminary to resection. It was also essential to keep the colon from becoming distended with gas after the anastomosis had been completed for this distention had probably been a more frequent cause of failure than any other single factor. To avoid this difficulty, a colon tube or a Paul-Mixter tube was inserted through a colostomy or enterostomy opening proximal to the anastomosis. If this was sutured in place by Kader's method (for gastrostomy), the opening closed promptly after the tube had been withdrawn. Soiling of the inner suture line by feces did not seem to be very injurious; and this observation paralleled the experience in wounds in the rectum, which could be inspected, and in which healing seemed to progress without much difficulty. Dr. Semken regretted that Dr. Erdmann did not give greater consideration to the related lymphatic structures, since these also should be included in all radical operations for cancer of the colon, even though such tumors tended to remain localized for a long period. The work of Jamieson and Dobson, published in 1909 in the Pro-

ceedings of the Royal Society of Medicine of London, showing the location of the lymph nodes related to the colon, was a classic that deserved the closest study in this connection.

Dr. FARR asked Dr. Erdmann how he treated perforating growths in the lower bowel. He said he had had one or two perforating carcinomas and two instances of perforating diverticulitis.

Dr. BANCROFT asked Dr. Erdmann whether he understood correctly that Dr. Erdmann as a rule did not make a permanent colostomy. Did he always bring the sigmoid down to the anus? He had seen patients with an artificial anus on the left side who suffered very little discomfort. He would like to hear Dr. Erdmann express his opinion on this point.

Dr. ERDMANN, in reply to these questions, said he had evidently read his paper too fast as the reply to both questions might be found in his paper. He had said that when a patient came in and a diagnosis of obstruction due to a tumor was made he did a preliminary cecostomy. As a rule he put the artificial anus in the right side, making the incision sufficiently large to permit him to put his hand in and palpate the colon and learn just about what he had to deal with. Just that day he had had a patient come in who gave a history of having had colic since July. In fact, some discomfort had been noticed since April or May. This patient was distended and had succussion sounds in his cecum, making it evident that he had to be operated upon. Fearing that he was going to have a fearful time with adhesions due to a previous appendectomy the incision was made on the left side and the growth was found at the splenic flexure. He decided then to make an opening on the right side, and after making the incision spent twenty minutes breaking up adhesions. Finally he succeeded in mobilizing the cecum and making an artificial anus. The last thing he closed, whether in a cecostomy, an appendocostomy, or what not, was the gas vent.

Dr. BANCROFT said that in his question he referred to the disposal of the proximal end of the bowel after resection.

Dr. ERDMANN said in a large number of these cases the anastomosis was made down below so as to make an ordinary anus, because he felt that the patient was more comfortable where this could be done. In regard to the perforating cases, Dr. Erdmann said he did not handle a perforation in the sigmoid due to carcinoma differently than he did a perforating diverticulum or a perforating appendix.

Dr. FARR asked Dr. Erdmann how he treated an acute spreading peritonitis associated with malignancy and perforation.

Dr. ERDMANN replied that he brought the colon with the tumor out through the abdominal wound if possible and allowed the infection to clear up before proceeding.

Dr. SEWARD ERDMAN asked whether he was correct in the impression gained from the paper that he did not usually make use of a permanent abdominal anus but preferred to bring the stump down to the perineum, after resection of the rectum and anus. He asked whether such an artificial anus was more convenient for the patient. Furthermore, in a case of complete acute obstruction from a malignant growth, would Dr. Erdmann proceed with resection and anastomosis at the primary operation, or did he merely relieve the symptoms by some form of colostomy and defer the resection to a later date?

Dr. ERDMANN replied that that was true where it could be done. If one could bring the proximal portion of the gut down he thought that was preferable at the present time. He was not having the disturbances and dissatisfaction that some were having when this was done. He had one woman now in whom he had operated six years ago in this way and she was employed in the cloak department of a large store and no one knew that there was anything the matter with her.

Oblique Anastomosis of the Colon. (With Lantern Slides.)—Dr. A. L. SORESI presented a patient upon whom he had performed a colonic resection and anastomosis according to this method. It was thought that this patient was suffering from intestinal obstruction. At operation carcinoma was discovered. The operation was performed two years ago, the patient made a good recovery and thus far had had no recurrence. Dr. Soresi exhibited lantern slides illustrating the procedure he employed after the growth had been removed. He called it an oblique anastomosis. It consisted in the application of the same method of suture to the colon and sigmoid that he had devised for gastrojejunostomy. He emphasized that the cut ends of the gut must not be traumatized by the fingers or in other ways and no cautery was used. With this oblique anastomosis there was no danger of pocketing, of leakage, or of stenosis. Specimens of portions of the intestine of dogs in which this form of anastomosis had been performed were shown. Catgut was to be preferred as a suture material because there was a tendency for calculi to form about a silk suture in this location. The oblique suture was indicated in every case in which an anastomosis was to be made. The technique was not difficult. He had employed it in some forty cases in all parts of the intestine and in no case had he had leakage.

Dr. ERDMANN said he was very glad to have heard Dr. Soresi describe this method of anastomosis. However, he would not call it an oblique anastomosis but a lateral anastomosis. It was simply splitting a rectangular flap. It required exposure of the operative field for a longer time and the exposure of a greater amount of surface to infection. However, the danger of infection was very slight. As Dr. Downes had said, the abdomen could take care of a considerable amount of healthy feces without becoming infected, and if infection did not occur this was a very excellent method. Dr. Erdmann said he did not fear an end to end anastomosis in the small intestine. He had done an end to end anastomosis again and again and sewed the abdomen up tight and he had had no infection.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

MEDICAL EXAMINERS OF WYOMING.

Cheyenne, June 6-8, 1921.

(*Concluded from page* 217.)

GYNECOLOGY.

1. Discuss the etiology, diagnosis, and treatment of acute and chronic salpingitis.
2. Give the diagnosis, etiology, and treatment of carcinoma of the cervix.
3. What are the indications for and technique of abdominal hysterectomy?
4. Describe the symptoms, signs, and treatment of acute gonorrhea in the female.
5. Differentiate extrauterine pregnancy, ovarian cyst, and pyosalpinx.
6. Discuss the physiological processes of ovulation and menstruation.
7. Discuss the diagnosis and treatment of fibromyomata of the uterus.
8. Describe the surgical repair of a bilaterally lacerated cervix and a complete perineal laceration.
9. Give the principal causes and treatment of sterility in women.
10. Give the indications for ventral fixation of the uterus, and the technique of the operation.
11. What is endometritis? Give its causes, classification, and treatment.

ANSWERS.

GYNECOLOGY.

1. *Salpingitis* is inflammation of the Fallopian tube. *Causes:* Gonorrhea, septic infection, subinvolution, fibroids, uterine displacements, lacerated cervix, taking cold at menstrual periods, and certain diseases such as the eruptive fevers and syphilis or tuberculosis. *Symptoms:* Pain or discomfort, made worse by pressure. examination, defecation; or colicky pains over the tube; dysmenorrhea; increased menstrual flow; tubes are found to be dilated and swollen. *Varieties:* Hematosalpinx, when tubes are distended with blood; Pyosalpinx, when they contain pus; Hydrosalpinx, when they contain serous fluid or exudate. *Diagnosis:* A drag-

ing sensation in the neighborhood of the affected ube; colicky pain, which is increased on exertion or ven on standing; abdominal tenderness; menstrual isorders, as amenorrhea, metrorrhagia, dysmenorrhea, enorrhagia; dyspareunia; there may be septic symp-oms and peritonitis; sterility generally ensues. On xamination there will be found a fullness in Douglas' ouch and one or both lateral fornices; in these latter ill be felt either the tubes, distorted and possibly ad-erent, or a sausage-shaped tumor, which is very pain-ul; the uterus is retroverted or retroflexed, and may e bound down by adhesion; there may be an inter-nittent expulsion of pus accompanied and preceded by burning pelvic pain. *Treatment:* Rest in bed, hot aginal douches, saline purgatives, liquid diet, mor-hine (if necessary) for pain, removal of pathological onditions and complications; radical operation (sal-ingectomy, or salpingo-oophorectomy) may be neces-ary.

2. *Cancer of the cervix:* "Laceration and erosion are redisposing factors. It occurs most frequently between he ages of 35 and 50. The symptoms are hemorrhage, ain, and discharge. The diagnosis is made on the hysical and microscopical examination. The cervix s hard and nodular, and the mucous membrane seems immovably fixed to the underlying tissue. These nodules break down, the entire cervix becomes ulcer-ated, or large cauliflower-like masses may fill the upper part of the vagina. The diseased tissue is friable and bleeds upon touch. The prognosis is unfavorable un-less a radical operation is performed. The treatment consists in removal of the entire uterus, but is con-traindicated when the disease has extended to inacces-sible organs. The palliative treatment consists in relieving the pain by morphine and in the removal of the diseased tissue by the scissors, curet, or caustic for the relief of the hemorrhage and discharge."

3. The INDICATIONS FOR ABDOMINAL HYSTERECTOMY are given as follows: All solid or cystic tumors of the uterus; cancer, uterine rupture during labor; certain conditions of puerperal sepsis; pregnancy complicated by pelvic deformity, cancer, or other serious obstacle to the passage of the child; uterine prolapse or inver-sion, and incidentally as a step in the removal of com-plicated suppurative conditions of the uterine ap-pendages.

Abdominal Hysterectomy.—"The patient must be carefully prepared as for any other abdominal opera-tion, but in addition the pubes and vulva must be shaved and thoroughly purified; the vagina should be douched for some days previously, and an antiseptic dressing worn, and if need be the uterine canal should be curetted and disinfected with some powerful antiseptic.

"After anesthesia has been induced the Trendelen-burg position is adopted, and an incision of suitable length made in the median line. The parts are then carefully explored, and if no adhesions exist an ab-dominal cloth is packed in over the intestines in order to protect and keep them from exposure and injury. If adhesions to omentum or gut are present they must be carefully divided: it is, of course, most desirable that a complete peritoneal covering should be secured for any adherent organs; omental grafts may be some-times useful in this direction. The broad ligaments are then examined, and a decision made as to whether or not the ovaries and tubes are to be saved.

"A pedicle needle carrying a sufficient length of well-boiled silk is carried through the round ligament so as to secure the ovarian artery and veins, and tied as far away from the uterus as possible. A broad liga-ment clamp may then be placed in position close to the uterus, so as to prevent venous regurgitation, and the broad ligament is divided halfway down. It is often possible and desirable to pick up the divided end of the ovarian artery on the face of this section and secure it separately, while the little artery which ac-companies the round ligament should also be carefully secured. The ovarian artery on the other side is next dealt with in a similar fashion. A transverse cut is now made across the front of the uterus, involving merely the serous membrane and connecting the two ends of the incisions in the broad ligaments: the peri-toneum below this transverse cut is detached, together with the bladder, from the cervix, and the intraliga-mentary space is thereby opened up on either side. In this will be found the uterine vessels, and it may be possible to see and isolate the uterine artery before securing it by ligature. Care must be taken in this part of the operation to keep close to the uterus, as the ureter comes forward from behind under the uterine artery to reach the bladder, lying about the level of the os internum. The uterine vessels are in this way carefully secured and divided.

"The uterus is now merely held by the connection between the vagina and cervix and the peritoneal re-flection in Douglas' pouch. If a supravaginal opera-tion will suffice, the surgeon cuts across the neck of the uterus in such a way as to fashion two flaps, and finally the peritoneum behind is divided. A few small vessels will probably need to be secured on the face of the uterine stump. This having been effected, the uterine flaps are stitched carefully together so as to bury the open cervical canal; the uterine stump is then covered in by uniting the divided portions of perito-neum. This line of sutures is carried up on either side so as to secure the two layers of the broad ligament; the final result is that the pelvic floor is covered in by a continuous layer of peritoneum, showing a sutured incision which runs transversely from one side to the other. The usual peritoneal toilette follows, and the abdomen is generally closed entirely, no drainage being required."—(Rose and Carless' *Surgery.*)

4. GONORRHEA.—*Symptoms.*—Pain and burning in the vulva; pain and burning on micturition; dyspare-unia; yellowish or greenish discharge, in which the gonococcus can be found; the vagina is hot, red, swollen, and tender. *Diagnosis* is made from the symptoms, particularly from finding the gonococcus in the dis-charge.

Treatment: Rest, if possible in bed; freedom from alcoholic or sexual excitement; a mild and unirritating diet; salines and diuretics; plenty of water to drink; a warm sitz bath; douching of vagina with about a gallon of a 1:5000 bichloride solution, or of borax (1 dram to the quart), or of potassium permanganate (1 per cent. solution); the douche is to be taken in the recumbent position.

5. In *extrauterine pregnancy,* there will be signs of early pregnancy, hypogastric or inguinal pains, prob-able history of a previous sterility, probable expulsion of decidual membrane or shreds, softening of the cer-vix, enlargement of the uterus, presence of a distended tube, contractions of the wall of the gestation sac; if rupture occurs, there will be sudden, excruciating pains over the lower abdomen and on the affected side, shock, collapse, and symptoms of internal hemorrhage. In *pyosalpinx* the tubes are inflamed usually secondary to inflammation of uterus or to infection (either gonor-rheal or puerperal), backache, pain in lower abdomen, history of menstrual irregularity, leucorrhea, tube is enlarged and tender. In *ovarian cyst,* no signs of preg-nancy, the tumor may grow to enormous size, fluctua-tion generaly distinct, emaciation, not painful, facies ovariana.

6. *Ovulation.*—In the process of development in the ovary, the individual Graafian follicle increases in size and gradually approaches the surface of the ovary. When fully ripe or mature, it forms a little projec-tion on the exterior. Coincident with the increase in size, which is caused by the augmentation of its liquid contents, the external envelope of the distended vesicle becomes very thin and eventually bursts. The ovum and fluid contents of the vesicle escape on the ex-terior of the ovary, whence they pass into the Fallo-pian tube.

Menstruation is a periodic discharge of blood from the mucous membrane of the uterus, due to a fatty degeneration of the small blood-vessels. Under the pressure of an increased amount of blood in the re-productive organs, attending the process of ovula-tion, the blood-vessels rupture, and a hemorrhage takes place into the uterine cavity; thence it passes into the vagina. Menstruation lasts from five to six days, and the average amount of blood is about five ounces. It begins at puberty and occurs periodically at about 28 days interval, until the menopause; it is absent during pregnancy and early lactation.

The relation existing between ovulation and men-struation is not known. The two processes are usually coexistent, but they may be independent of each other.

The following theories have been held: (1) Menstruation is dependent upon ovulation; (2) ovulation is dependent upon menstruation; (3) they are independent of each other; (4) they both depend upon some other (at present unknown) cause.

7. UTERINE FIBROIDS are very common. "They are benign, but are harmful on account of the disturbance produced by them when enlarged, and also on account of the various degenerations which they are likely to undergo. Menorrhagia, metrorrhagia, and pain are the common symptoms of the growths, although in patients with large intestinal and subserous fibroids hemorrhage may be absent. In cases of the submucous tumors (fibroid polypi) bleeding may be extreme. The tumors are usually of slow growth, but sometimes they increase very rapidly in size, causing serious pressure symptoms. The diagnosis is sometimes very difficult and always impossible without physical examination. Uterine fioroma may coexist with pregnancy.

The treatment consists in removal. In cases of subserous fibroid the snare may be used when it is pediculated, and when sessile the capsule may be cut and the growth enucleated. In the subserous and interstitial variety if the patient can be kept under observation and the tumor is small operation should be postponed; otherwise a choice should be made between removal of the uterine appendages, ligation of the uterine arteries through the vagina, myomectomy, and hysteromyomectomy."—(Gould and Pyle's *Pocket Cyclopedia.*)

8. *To repair a lacerated cervix:* "A general anesthetic is administered and the patient placed in the lithotomy position. *Step* 1.—The cervix is exposed by a weighted vaginal speculum and two lateral retractors. The anterior lip of the cervix is grasped by a bullet forceps. *Step* 2. —With long rat-tooth tissue forceps and a long curved scissors, the edges of the laceration are made raw by excising a strip of scar tissue the length of the tear and well down into the angle of the laceration, taking care to remove the plug of scar tissue in the angle. The utmost care must be exercised in the process of denudation for fear of removing the mucous membrane that is to form the cervical canal. For this purpose a strip one-fourth of an inch wide is left in the middle of either lip. *Step* 3.—Sutures of No. 2 ten-day chromic catgut are now passed to unite the opposing denuded surfaces. The first suture is passed near the angle. A short cutting needle (Emmet's preferred) is passed from the outer margin of the line of denudation underneath the denuded surface and emerges at the margin of the strip of mucous membrane. The needle is then carried in an opposite direction through the opposite lip of the cervix. The remaining sutures are passed at intervals of one-half inch until the external os is reached, when they are all tied.

"To demonstrate the patency of the cervical canal a sound should be passed through the cervix. A gauze pack is now placed against the cervix and a sterile vulvar pad adjusted and held in place by a T-binder." —(Findley's *Diseases of Women.*)

Operation for lacerated perineum: "The labia are seized with Allis' forceps at the level of the lowest carunculæ myrtiformes. A guide stitch is placed in the posterior vaginal wall directly under the external urinary meatus. By pulling one Allis forceps and the guide stitch in opposite directions outward and downward, the posterior sulcus is exposed; denudation is required, even in a recent tear, for a part of it is always submucous. The other sulcus is exposed and denuded. Then by holding the guide stitch upward in the middle line and pulling the forceps apart the mucous membrane between the sulci is denuded or freshly torn surfaces covered with granulation-tissue are scraped with the edge of a knife. The ruptured levator ani muscle in the posterior sulci is united with a double tier suture of chromic gut, two half hitches being taken in the stitch as it turns upward after coming down from the apex of the wound, in its deeper portion to the base. One knot at the apex of the sulcal denudation secures the stitch. The retracted ends of the transverse perinei and bulbocavernosus muscles are brought together by silkworm sutures. Finally, a single stitch at the top of the perineal wound unites the posterior commissure of the vulva, restoring the fossa navicularis. The perineal stitches are knotted; they are removed on the twelfth day."—(Hirst's *Obstetrics.*)

9. The *most common causes of sterility in woman* are: Gonorrhea, absence or errors in development of any part of the genital tract, malformations of genitals, fistulæ, lacerations, obesity, alcoholism, pelvic inflammations, dyspareunia, inflammations of uterus, tubes, or ovaries, elongated cervix. The cause may not be in the woman, but in the man.

Treatment consists in removing the cause, if possible; curettage has been recommended; in the presence of developmental errors little or nothing can be done; atresia of cervix can be treated by dilatation; if the uterus is misplaced it must be replaced.

10. *Ventrofixation.* "This is a procedure that must be cautiously undertaken in married patients who have not reached the climacteric. An incision two or three inches in length is made immediately above the symphysis, and the fundus uteri is drawn forward by a volsellum. The silkworm gut stitches are inserted through the abdominal parietes and peritoneum, and also through the body of the uterus just posterior to its axis. The stitches should include about three-quarters of an inch of the uterine wall in their grasp, and go about one-eighth of an inch deep. On drawing them tight, the uterus is fixed forward against the abdominal wall and contracts adhesions. In some cases it may be desirable to scarify the uterine wall before tying the stitches, so as the better to determine adhesions. As a general rule the adhesions stretch somewhat, and hence allow a certain degree of play, but without the likelihood of a return of the displacement."—(Rose and Carless' *Surgery.*)

Ventrofixation is indicated in cases of prolapsed uterus uncomplicated by uterine tumor, and when subsequent pregnancy is not expected to occur.

11. *Endometritis* is inflammation of the mucous membrane lining the uterus.

"*Acute endometritis* is the result of the introduction into the uterus of septic microorganisms. This usually occurs during labor or miscarriage, or it may result from operations, such as dilatation, or from the introduction of an unclean sound. It sometimes occurs as a complication of the exanthems. If the process is severe enough, it may involve the muscular tissue underneath the mucous membrane, when it is called metritis; or the peritoneal covering of the uterus may be invaded, when it is called perimetritis. *Symptoms* —Acute corporeal endometritis is usually attended by considerable pain, of a dull, aching character. There are constipation and vesical irritability. The pulse is rapid and temperature in some cases is very high—from 104° to 106° F. Vaginal examination reveals a patulous cervical canal with a profuse purulent discharge escaping from it. The uterus is enlarged, boggy, and tender.

Treatment.—Acute corporeal endometritis following miscarriage or labor should be treated actively. The uterus should be thoroughly curetted, in order to remove any portions of decidua or membranes remaining after parturition. If the symptoms do not subside in the course of 24 hours, intrauterine douches of sterile water may be given 2 or 3 times daily. Free purgation, hot stupes to the lower abdomen, a generous diet of milk and broths, and an abundance of stimulation will be required. In the gravest cases hysterectomy will have to be performed. In less severe cases of acute endometritis rest in bed, v aginal douches of hot, sterile water, and purgation will be sufficient.

"*Chronic endometritis* may result from an acute attack or it may be chronic from the beginning. One of the most frequent causes of this condition is gonorrheal infection. Chronic endometritis accompanies a variety of pathological conditions of the uterus, such as displacements, subinvolution, laceration of the cervix, and fibroid tumors. Two varieties of chronic endometritis have been described—glandular and interstitial. The *symptoms* of chronic endometritis are usually well marked. There is pain, of a dull, aching character, most evident in the back and extending down the thighs. Leucorrhea is constant, and is quite characteristic. The discharge is thin, purulent, and blood-streaked. Menstruation is profuse, and lasts usually from 5 to 7 days. The patient's general health suffers; she loses weight and becomes anemic, there is a sense

of great reduction in physical strength. Headache is a very common symptom. Nervous, digestive, and circulatory disturbances appear sooner or later. Physical examination reveals an enlarged, tender uterus. The cervical canal is patulous; the external os is eroded. The characteristic discharge can be seen escaping from the cervix."—(*Cyclopedia of Medicine and Surgery.*)

Treatment of chronic endometritis. The general health must be attended to; rest is indicated; constipation must be avoided; tonics are of slight use; ergot is useful for the menorrhagia or metrorrhagia; vaginal douches, pessaries, hip baths, and counter-irritation have all been recommended; curettage may help; and one or both lips of the cervix may be amputated. Foreign bodies, such as polypi and fibroids, must be removed; and any causative factors must be treated.

BULLETIN OF APPROACHING EXAMINATIONS

STATE	NAME AND ADDRESS OF SECRETARY	PLACE AND DATE OF NEXT EXAMINATION
Alabama*	S. W. Welch, Montgomery	Montgomery...July 11
Arizona*	A. Martin, 207 Goodrich Building, Phoenix	Phoenix.....April 4
Arkansas		Little Rock....May
California	C. B. Pinkham, Sacramento	San Francisco..June 26
Colorado	David A. Strickler, Empire Building, Denver	Denver.....April 4
Connecticut*	R. L. Rowley, Hartford	Hartford.....Mar. 14
Delaware	H. W. Briggs, Wilmington	Wilmington....June 20
Dist. of Col'ba	E. P. Copeland, Washington	Washington....April 11
Florida*	W. M. Rowlett, Tampa	Tampa.....June 12
Georgia	C. T. Nolan, Marietta	Augusta.....May 31 Atlanta.....June 7
Idaho*	Paul Davis, Boise	Boise.....April 5
Illinois	F. C. Dodds, Springfield	Chicago.....
Indiana	W. T. Gott, Crawfordsville	Indianapolis...
Iowa	Rodney P. Fageu, Des Moines	Iowa City.....Mar. 26
Kansas	A. S. Ross, Sabetha	Topeka.....June 20
Kentucky	A. T. McCormack, Louisville	Louisville.....
Louisiana	E. W. Mahler, New Orleans	New Orleans...
Maine	F. W. Searle, Portland	Portland.....
Maryland	J. McP. Scott, Hagerstown	Baltimore.....June
Massachusetts*	W. P. Bowers, 1 Beacon St., Boston	Boston.....Mar. 14
Michigan	B. D. Harison, 504 Washington Arcade, Detroit	Ann Arbor.....June 13
Minnesota	T. McDavitt, St. Paul	Minneapolis...April 4
Mississippi	J. D. Gilleylen, Jackson	Jackson.....
Missouri	C. E. Enloe, Jefferson City	
Montana*	S. A. Cooney, Helena	Helena.....April 4
Nebraska	H. H. Antles, Lincoln	Lincoln.....June
Nevada	S. L. Lee, Carson City	Carson City...May 1
N. Hampshire	C. Duncan, Concord	Concord.....Mar. 9
New Jersey	A. MacAlister, Trenton	Trenton,.....June 20
New Mexico	R. K. McClanahan, E. Las Vegas	Sante Fe.....
New York	G. M. Wiley, Univ. of State of New York, Albany	New York.... Albany.....May 22 Syracuse..... Buffalo.....
No. Carolina	K. P. B. Bonner, Moorehead City	June
No. Dakota	G. M. Williamson, Grand Forks	Grand Forks...July 4
Ohio	H. M. Platter, Columbus	Columbus.....
Oklahoma	J. M. Byrum, Shawnee	Oklahoma City.April 11
Oregon	R. E. Watkins, Portland	Portland.....
Pennsylvania	N. C. Schaeffer, Harrisburg	Philadelphia...July 11
Rhode Island	B. U. Richards, Providence	Providence....April 6
So. Carolina	A. E. Boozer, Columbia	Columbia.....June 27
So. Dakota	H. R. Kenaston, Bonesteel	Waubay.....July 18
Tennessee	A. B. DeLoach, Memphis	Memphis..... Nashville.....June Knoxville.....
Texas	T. J. Crowe, Dallas	Dallas.....
Utah	G. F. Harding, Salt Lake City	Salt Lake City.
Vermont	W. Scott Nay, Underhill	Burlington.....
Virginia	J. W. Preston, Roanoke	Richmond.....June 20
Washington*	F. J. Dibble, Olympia	Olympia.....
W. Virginia	W. T. Henshaw, Charleston	Harpers Ferry..July 11
Wisconsin	J. M. Dodd, Ashland	Milwaukee.....
Wyoming	J. D. Shingle, Cheyenne	Cheyenne.....
National Board	V. S. Rodman, 1310 Medical Arts Building, Philadelphia	

*No reciprocity recognized by these States.

Death of Exner.—Professor Alfred Exner died in his 47th year on November 8 last of a malignant tumor of the kidney. The tumor cells penetrated at an early period into the vena cava and numerous metastases were set up, notably in the bones. He developed a spontaneous fracture of the right thigh from one and from the spinal metastases he developed paraplegia. The deceased, who had always been a glutton for hard work, began his surgical career as assistant to Gussenbauer and after the death of the latter he was associated for 13 years with Hochenegg. At the time of his death he was surgeon in chief of the Merciful Brothers Hospital in Vienna. He wrote some 60 papers on surgical subjects, largely those with an experimental bent, such as the absorptive capacity of the peritoneum, the genesis of gallstones, etc. He was interested in the surgical uses of radium.—*Wiener klinische Wochenschrift.*

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

AN INTRODUCTION TO BIOPHYSICS. By DAVID BURNS. 435 pages with 85 illustrations. Published by the Macmillan Company, New York.

STUDIES FROM THE ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH. Reprints Vol. XXXIX. 662 pages with illustrations and colored plates. Published by The Rockefeller Institute for Medical Research.

TREBALLS DE LA SOCIETAT DE BIOLOGIA, 1919. Published under direction of A. PI SUNER. 314 pages with illustrations. Price, 10 ptes. Published by L'Institut D'Estudie Catalans, Barcelona.

SYSTEM DER NEUROSE. By Dr. EMIL KUGLER. 188 pages. Price, 84 M. Published by Urban & Schwarzenberg, Berlin.

GRUNDRISS DER GESAMTEN RÖNTGENDIAGNOSTIK INNERER KRANKHEITEN. By FRITZ MUNK. 297 pages with 193 illustrations. Price 180 M. Published by Georg Thieme, Leipzig.

THIRTY-SECOND ANNUAL REPORT OF THE STATE HOSPITAL COMMISSION, July 1, 1919, to June 30, 1920. 372 pages with tables. Printed by J. B. Lyon Company, Albany.

THE MEDICAL DEPT. OF THE U. S. ARMY IN THE WORLD WAR. Vol. XV. STATISTICS, Part 1, ARMY ANTHROPOLOGY. Prepared by CHARLES B. DAVENPORT, under direction of M. W. IRELAND. 635 pages with tables. Published by the Government Printing Office, Washington, D. C.

A PSYCHIATRIC MILESTONE, BLOOMINGDALE HOSPITAL CENTENARY. 215 pages with frontispiece. Privately printed by the Society of the New York Hospital.

THE MEDICAL CLINICS OF NORTH AMERICA, November, 1921. 363 pages with illustrations. Price, $12.00 per year (6 numbers). Published by W. B. Saunders Company, Philadelphia.

REPORT OF THE PHILIPPINE HEALTH SERVICE, January to December, 1920. 497 pages with illustrations. Published by the Manila Bureau of Printing.

THE EVOLUTION OF MODERN MEDICINE. By Sir WILLIAM OSLER. 239 pages with illustrations. Published by Yale University Press, New Haven.

EPISCOPAL HOSPITAL REPORTS, Vol. 5. 506 pages with illustrations. Published by Wm. J. Dornan, Philadelphia.

DISEASES OF THE DIGESTIVE ORGANS. By CHARLES D. AARON. 904 pages with 164 engravings, 48 roentgenograms and 13 colored plates. Price, $10.00. Published by Lea & Febiger, Philadelphia.

AIDS TO MEDICINE. By BERNARD HUDSON. 370 pages. Third Edition. Price, $2.00. Published by William Wood & Company, New York.

COMMUNITY RESPONSIBILITY. By COURTENAY DINWIDDIE, with Statistics by BENNET L. MEAD. 171 pages. Price, 35 cents. Published by The New York School of Social Work, New York.

THE SURGICAL CLINICS OF NORTH AMERICA, December, 1921, Vol. 1, No. 6. 295 pages with illustrations. Price, $12.00 per year (6 numbers). Published by W. B. Saunders Company, Philadelphia.

THE SURGERY OF THE PERIPHERAL NERVE INJURIES OF WARFARE. By HARRY PLATT. 49 pages with illustrations. Price, $1.25. Published by William Wood & Company, New York.

COMPEND OF BACTERIOLOGY. By ROBERT L. PITFIELD. 297 pages, with illustrations. Published by P. Blakiston's Son & Company. Price, $2.00.

MEDICAL ELECTRICITY FOR STUDENTS. By A. R. I. BROWNE. 231 pages, with illustrations. Published by Henry Frowde and Hodder & Stoughton. Price, $4.25.

BOWEL DISEASES IN THE TROPICS. By Sir LEONARD ROGERS. 475 pages, with illustrations. Published by Henry Frowde and Hodder & Stoughton. Price, $9.00.

MIND AND ITS DISORDERS. By W. H. B. STODDART. 592 pages, with illustrations. Published by P. Blakiston's Son & Company. Price, $7.50.

Medical History.

NEW BOOKS AND OLD.

XXIII. WALTER MOXON AND HIS PILOCEREUS SENILIS.

By JOHN RUHRÄH, M.D.,

BALTIMORE, MD.

(*Concluded from page* 264.)

In 1868 Moxon delivered the introductory lecture at Guy's Hospital. He chose for his topic "How Should We Study Medicine." A rather long lecture full of good advice and quaint phrasing.

Don't let what you hear from me stand to you in the place of your own thoughtful observation and inquiry. Think out your own view of the profession honestly, liberally, and truthfully. . . .

Before we commence some trade or profession we are like social fœtuses. The progress of social development is also from the general to the special. There is an absence of what is called differentiation in boys, corresponding exactly to what physiologists tell us of in the early development of mammals. They tell us that a rather clever man cannot at first say whether the little creature is going to be a cat or a monkey, and this doubtful state hands about it until it gets it teeth and nails, and the rest of its means of working for its living, and then any one can see what it is. You see, the characteristic qualities come when a thing has to do its real work in the world; and when these come out, the more general (and hence useless) qualities, which had been upon the surface hitherto, go out of sight, to be hunted after by comparative anatomists. Now, in just the same way we are, as boys, all one with the rest of boys, and show the same general but useless characters which we share with young clergymen, and lawyers, and merchants; but now that we are to differentiate into doctors, those boyish appearances and manners must recede into the depths of our nature, and we must develop the qualities of physicians and surgeons.

It would be a fine thing if our school teachers, they call themselves educators and pedagogues these days, could be made to read over a few lines on the subject of learning. The more I see of the present day school child, and alas, the present day medical student, the more I feel that their heads are crammed with facts rather than ideas. But back to Moxon:

Why, the very words I began with are examples. I said you would have to *get* a *store* of knowledge. And again, for another instance out of many, we speak of a man's *capacity*. These are bad words, gentlemen. We must learn not to look upon knowledge as stuff to store into capacities as if the relation of knowledge to the mind were the same as the relation of old curiosities to a lumber-room. No! It is not capacity and storage. The knowledge that enters does not find room, it makes room. It is poor, stunted stuff if, when it gets in, it does not grow. It will make poor growth if it does not grow in harmony and adaptation to what is already there, and unite and develop with it. The educated mind is not a stuffed bag. It is true of the mind as it is true of the body. "It cometh forth like a flower," though it is never cut down. The mind is a growth. . . .

Take care of your freedom, and, with all your getting, get understanding. Understanding is the organization, the digestion of your knowledge, the mastery of it, so that you are in possession of its central and cardinal points, its seats of government and control.

What we want to do is, to inquire into, and grasp intelligently, the principles of every science you study; you will not keep all the details, but when the details fall like leaves, then the principles shall remain, as the stem, and boughs, and branches, to give form, and strength, and permanency to your tree of knowledge. Let over the door of memory be written, Nothing unmethodized enters here. Don't cram with ill-arranged knowledge. Don't cram for your examinations. The examination is not you real trial; you only find *bail* there to appear again before a higher court, where your worth and usefulness will be vindicated or condemned without appeal. DON'T CRAM!

It is pitiful to see those poor creatures who, without putting out vital power of mind, suck, and imbibe, and swell out into shapeless lumps of unorganized learning which dies down and decomposes in them, till they go about putrescent heaps of decaying knowledge, on which theories and -opathies, and other low growths sprout and flourish like funguses on a dunghill. Don't cram. Don't fear your examinations. A wise examiner does not "pluck" for what you don't know, but for mistakes which show confusion and error in principle. Don't suppose you can "get up" in the last few months of your study such a knowledge of principles as will save you from confusion and error. You can't. Consider the limits of your acquiring intellect. Your intellect cannot take photographs; it is just one single individual indivisible point, that, like your discerning vision, can only attend to one thing at one tme.

Your intellect, like a single pencil-point, will go, throughout each day, over the page of memory; and it will write deeply and durably, as attention keeps it down firmly. Please let it now write down this indelibly: *Bad Memory is another name for Inattention!*

Moxon was practical and he realized the futility of striving after the unattainable. He believed in doing the task at hand and not in dreaming about the endless possibilities of some distant future:

Don't be dazzled by brilliant aims. Keep your minds fixed on today's duty, for your life is not lived to an aim. *Sine missione nascimur*, we live to a duty. Don't let us think and act as if we were here to sweep disease and death off the face of the earth, or to give life for half a crown a bottle. This is rather our humbler, yet our truly nobler, service—it is, to be to each individual sufferer under our care all that a man can be to his fellowman in sickness. . . .

For why is it we are only honored in the sick-room, or as the old saw has it:

"God and the Doctor they alike adore,
"Just in the hour of danger, and no more;
"The danger o'er, both are alike requited;
"God is forgotten, and the doctor slighted."

There is much plain truth in both sides of that old comparison.

He gives a piece of advice which all medical students,—I speak of them both before and after they are graduated M.D.—would do well to follow. It is infinitely more true today than it was in his time. There are so many of us who forget that we have eyes and ears and fingers and brains of our own.

Get an independent, well-grounded familiarity with diseases for yourself, or you will never escape from the crowd of experts that will thrust their help upon you, to aid you with all sorts of -graphs, and -scopes, and -ometers. They will importune you—these multitudes of guides—to start on the old labyrinth from their new start-point, and to follow their thread, which will put you at their mercy; but do you start from some ground you know yourself, and take your own thread. Use the new-fashioned instruments rather to guide and educate your old and trusty five senses than to replace them.

Moxon would be a wonderful man to have about in these days of specialized and rationalized medicine. I should like to hear him on the subject of the man who went into a barber shop to get shaved. The barber persuaded him to have a hair-cut, singe, massage, tonic rub, manicure, shoe shine, and what not. At the end the barber said your hair is falling out, you need a bottle of Eau de Quinine which I have here in the shop. But the good man said

him nay, "I shall go," said he, "to my physician and have him prescribe." So to the learned man he hastened. "Aha!" said the doctor, "We will examine you thoroughly, this alopecia may indicate some deep seated endocrine lesion, some forgotten infection, something of which we are not now even cognoscent. We will examine you." So he *x*-rayed him, and had electrocardiograms taken, and blood, and stomach contents, and everything which could be examined was subjected to a careful scrutiny by a corps of highly trained and highly priced specialists. In the end the doctor after summing it all up said to the poor man—poor if he paid his bill—"We have ascertained that your hair is coming out and advise the use of some stimulating lotion such as Eau de Quinine."

Now hear our author:

Cannot you fancy the lecturer in 2874, of the threatening ear of what I may call Panteutonic Buddhism, beginning somehow thus: "The earliest age is known as the Scopes-age, from the name of the many kinds of instruments worn by physicians. Thus they had on their eyes things called microscopes, the nature of which is now unknown, as the records of the period were printed on bad paper, and were worse bound; but they could make the smallest trifles come to sight. To spy through these at the excretions was supposed by the ignorant patients to have a magical healing virtue. These instruments were said to magnify, a word meaning to make great; but it was afterwards found out that the things put under were really made no greater than they were before. How this strange error prevailed we cannot now understand, but it has been suggested that the constant wearing of microscopes prevented the physicians from being able to see the real relative size and importance of things. At the same early period doctors were not considered full-dressed unless they wore on their ears pipes of wood of ornamental design, called stethoscopes; and it is said they would crowd in dozens to hear an unusual squeak or whiz, which had in itself no real relation to the patients' suffering and danger; but the poor patients thought all the while that they received great benefit from this. Besides this, there were many other scopes; but for mention of them I must refer you to the historical lectures, in which you will find it shown clearly that these delusions were but part of the universal trust in machinery which led to the downfall and decay of civilization, to which I must apologize for so long directing your attention."

Moxon was not a therapeutic nihilist, quite the contrary. I cannot quote much more but he said:

A doctor without physic is like a priest without a creed or a poet without rhyme. It is only the other day that the *Times* said: "If there be anything which nature abhors, it is a doctor without medicine or advice. . . ."

It is not only from the ancient physicians themselves that we know they were sensible doctors; indeed, physicians have always had an unfortunate way of leaving the most useful part of their advice out of their writings, and filling these with technicalities and trash more or less obscure.

Only too often do we doctors imagine we are dealing with enlightened men and women, educated, sceptical, free from superstition and ignorance. Far from it. Man has not changed appreciably since the beginning of written records. His environment has changed, he has invented much but he thinks and feels as always. Listen to the lecturer on this subject:

Do not be led by the rational atmosphere at this hospital to thing the world is led by reason. Do you think that charms and spells are effaced, and that people do not hold to and long for them? Do not make such a mistake; they have not departed at all, nor been done away; they have only a little changed their shape, and are recognized without much difficulty. You will find the old and natural trust in spells and unknown agencies to be embodied, often very plainly, in the faithfully exact and almost worshipful deglutition of the orthodox dose three times a day. You may know it is only ammonia and gentian. They may half know it. But never think they take it as they would take a "pick me up" of brandy and soda; they swallow it as if to Æsculapius, and in the gulp their eyes sparkle with all the old ineffaceable longing for help from the unknown. The time-honored potion carries with it the undying power of the medicine-gods and medicine-man, of Fairyland, and of the witches, as real as ever. The conditions of emotional overstrain and tendency to unwonted credulity are naturally present around the sick-bed, and often are the more urgent in proportion as the occupant of it is more beloved. The calamity came from the unknown, and they will have help from the unknown. No education or civilization will ever refine or develop them out of that, for education and civilization carry nature farther, while it remains the same as before. This insatiable demand on unknown forms of help keeps therapeutics unstable. The demand from the unknown is answered, and the -opathies come out of limbo hungry, but smiling and full of promise, and patients encourage and favor their mysterious aid, and are ready to believe that what they have taken produced all the feelings that happened since, and hope made these feelings more pleasant. Thus pretentious quackery thrives parasitically on the sufferer's faith and hope.

And now we must leave Walter Moxon and his Pilocereus Senilis and his lectures and essays. If you see his work in a second hand shop give the man the quarter or half dollar he will ask for it and carry it away with a straight face but joy in your heart.

Semicentennial of the Union Médicale du Canada.—This periodical was founded in 1872, the initial number bearing the date January 1 of that year. The first editor-in-chief was J. P. Rottot. This enterprise was doubtless due in part to the organization in 1871 of the first medical society in Montreal. There were at the time under 600 physicians in the city and vicinity, and 400 of these subscribed for the new periodical. The journal was the official organ of the medical society and Hotel Dieu. In 1876 Dr. Grenier, who had succeeded to the editorial chair, succumbed to an illness and was succeeded by Dr. Persillier Lachapelle who conducted the journal at his own expense until 1882 when he transferred the editorship to Dr. Lamarche. In 1893 two French medical schools and two French medical journals were consolidated and the *Union Médicale* absorbed the *Gazette Médicale*, which had been organized in 1887. The editor-in-chief of the consolidated journal was H. Desrosiers, who resigned in 1895 and was succeeded by E. Benoit. In 1900 the present incumbent, Albert Lesage, assumed control of the journal. In noting the large number of editors—seven in all—it should be borne in mind that one of them, Grenier, died in office, at the age of 31, while Desrosiers was forced to resign on account of illness, dying shortly afterwards.

Work of the Pasteur Institute, Paris, During the Great War.—When hostilities first broke out the institute supplied 10,000 packages for serodiagnosis and 5,000 ampoules of antityphoid vaccine. Early in September the serotherapeutic headquarters were transferred to Toulouse with most of the horses used in manufacturing. Another laboratory was improvised in which 67,000 doses of vaccine were

manufactured. Then, as all of the supply on hand of tetanus serum, amounting to 140,000 doses, was used up at the front the new laboratory had to manufacture anew. During the entire course of the war the total number of horses used in the laboratories mounted to 1462. Over 6,000,000 doses of serum of all kinds were used up in France alone, while there were also supplied to Italy 1,000,000, Servia 10,000, Belgium 70,000, Roumania 40,000, and to the American Army and Red Cross 800,000, the grand total amounting to about 8,000,000 doses. After the German push in the spring of 1918 there were supplied 20,000 vials of antitetanic serum daily from the Institute, while in the Louis Martin laboratory were manufactured 34,000 liters of diphtheria and tetanus antitoxins. There were also supplied 390,000 vials of meningitis serum and 518,000 vials of dysentery serum. A laboratory under the charge of Legroux made a specialty of antityphoid and antidysenteric serum, supplying hundreds of thousands of doses, while Dujardin-Beaumetz, specializing in plague, furnished 78,000 vials of plague serum and vaccine jointly. Salimbeni and Fernbach had charge of the supply of mallein for veterinary practice, and during the entire course of the war supplied 1,200,000 doses. By 1915 aniline dyes for tinctorial purposes having been almost exhausted, Agulhon succeeded in devising over 40 new stains for bacteria. M. Nicolle worked in the direction of a pneumococcus serum, Weinberg and Seguin devised an antigangrenous serum for gas gangrene, Delezenne prepared snake antivenoms for colonials and Bertrand was active in the domain of poison gas.—*La Presse Médicale.*

Sanitary Supervision of Brandy in Cuba.—*Sanidad y Beneficencia,* the official health magazine of Cuba, contains an account of the official inspection of cognac, by Dr. Villamil. The word Cognac, applied originally to brandy from a locality of that name in France, now denotes in Cuba any kind of spirits distilled from wine or from fermented grape sugar, the latter being known as an artificial cognac. There are many varieties in the market, some of which are the product of rapid distillation. True cognac is aged in wood while artificial brandy is made by adding to grain alcohol various substances with or without further distillation. Actually in the market are imported French brandy, wine distillates or distillates of grape sugar, artificial brandy made by distilling alcohol with other substances, and simple synthetic brandy made by mixing alcohol with essences, etc., in the cold. In Cuba all of these articles are known as cognac. One of the substances present at times in synthetic brandy is vanillin. The number of substances which are actually added to brandy is very large, and this kind of spirit has always been subject to much sophistication. In some varieties the addition is in the form of fruits or leaves and in others fruit juices or essences, according as the spirit is to be redistilled or merely mixed in the cold. To make a rapid diagnosis of a sophisticated brandy one should test for the presence of vanillin, coccinic ether, or caramel.

Sovietism in the Buenos Aires University Medical Faculty.—Prof. Marcel Labbé of Paris was in charge of a French mission to take part in this ceremony and has written to *Le Temps,* the Paris daily, as follows: This anniversary of the Medical School was celebrated on the occasion of the presentation of students' diplomas by a special address given by Professor Fernandez, councillor of the university. The number of students and graduates has steadily increased during the century elapsed, both in medicine and pharmacy. There has been a process of evolution going on and now the students have a franchise in connection with university administration. This movement has been regarded as sovietistic, although some of the faculty regard it as due simply to straight sociological development untinged by the lunacy in Russia. It is more or less an experiment. Will the students choose professors and studies which will force them to work hard or will they make it as easy as possible for themselves? Again, the members of the teaching body may lose their dignity and stoop to flatter the students to obtain their suffrage. Thus far there are no signs of abuses. Certain professors are very popular who are also exacting. It does not appear to the editor that this innovation of student *rapprochement* with the faculty is anything more or less than the elective system of our undergraduate colleges applied to professional schools, although since the curricula of medical schools are quite rigid and subject in part to the administration of state examining boards, it is difficult to understand how an elective system can be carried out except by a vote on two or more competing professors for the same chair.—*Gazette des Hôpitaux.*

The Tranquilizing Balsam.—The socalled *baume tranquille* of the Abbé Rousseau is the subject of an article by Leclerc in *La Presse Médicale* for June 18, 1921, xxix, 49. The Abbé, it is claimed, also devised laudanum, but the credit for the latter was later given to Sydenham. He very nearly lost the credit for inventing the tranquilizing balsam as well, which was associated with an ecclesiastical colleague named or nicknamed Pêre Tranquille. This preparation from its emerald green hue and the great number of vegetable ingredients contained suggests a mixture of the absinthe type especially as the narcotic ingredients were commingled with many aromatic essences. The formula includes stramonium leaves, belladonna, and even the tobacco leaf. Other ingredients were henbane, poppy, nightshade, mandrake, phytolacca, etc.—apparently always the leaves, rather than other portions of the plant which might be of much greater activity. The original formula, also called for live frogs. In the modern Codex the formula is greatly simplified, comprising the dried leaves of belladonna, stramonium, henbane, nightshade, and poppy with essences of rosemary, thyme, lavender, and mint. Rousseau with Pêre Aignan, who was later known as Pêre Tranquille, were medical missionaries in the Levant and Abyssinia, in the XVII century. The above was but one of a number of remedies which they employed among the natives of those regions and which later became popular in France. Rousseau became physician to the King of France and seems to have retired from the Capucin order of which he had long been a member. He professed the then new science of chemistry, which he chose in part to gain access to Turkey, his proselytizing campaign evidently requiring a blind of some kind.

Medical

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Original Articles.

TRANSIENT HEMIPLEGIA.*

BY W. GILMAN THOMPSON, M.D.,

NEW YORK.

ONE usually is called upon to make a definite prognosis, not only at the onset of a hemiplegia, but also during its course, as to the degree of improvement to be expected, as well as the possibility of a recurrence of the seizure. The patient commonly being of advanced age, it often happens that family and business or other interests of considerable importance are at stake. The suddenness of the attack, moreover, makes the family more importunate in demanding a definite forecast of the outcome which is not easily met by generalizations. While much may be predicted, through knowledge of the patient's age, the condition of the vascular system, the presence of long-standing disease such as chronic nephritis, syphilis, etc., there nevertheless remain many cases in which it is exceedingly difficult to offer an accurate prognosis. Are there, then, any general principles which may guide one to a conclusion for any considerable number of patients? Before discussing this matter, reference to the following unusual cases will illustrate some of the difficulties encountered:

The most striking case of transient hemiplegia which I recall I met with many years ago, but it made a lasting impression, for, being recently out of Medical College, I had heard the symptoms and course of hemiplegia thoroughly emphasized, but this case was nothing like anything I had been taught to expect, and, in fact, it mystified four of my college professors who were in consultation.

The patient was Dr. "X," who was professor of physiology at the time of the seizure. He was then a few years past sixty. He was in apparent good health, when, while lunching at his club, he was attacked by hemiplegia, and by the time he had reached his home, where he was promptly carried, he was in profound coma. It was as typical a case of complete, right-sided hemiplegia as one possibly could see. Four of his colleagues being summoned in consultation, quite naturally made the gravest prognosis. As I was one of the professor's assistants I was sent there to be near his bedside, while the four eminent professors went away to return in the evening for further consultation. "Unless," they said, "I should have occasion to notify them of the death of the patient in the meantime," as none of them had any idea that he would recover. His breathing was stertorous, there was complete unilateral facial paralysis with deviation of the axes of the eyes, and the entire right side of the body was in absolute paralysis. After an interval of two or three hours I went to the patient's bedside to pass a catheter, which I was in the act of doing, when, with great suddenness, he hit me a round blow in the chest with his *right* arm! This was a new kind of hemiplegia to me, so I went into his library to read up the subject anew. Shortly after the nurse came running in and said that Dr. "X," whose eyes troubled him in a bright light, had jumped out of bed and walked over to turn out the light, which was annoying him, he being unable to speak. I hurried in to examine him and found him completely aphasic and apparently much bewildered in mind, like a drunken man. He had almost entirely recovered the power of motion in the right limbs after an interval of six hours. His mental confusion and complete aphasia, however, lasted throughout the evening, when the four professors returned, and I was greatly edified to witness their astonishment and hear their attempted explanations of the total breakdown of their prognosis! The next day Dr. "X" wrote we, with his previously paralyzed hand, a very courteous note, apologizing for his treatment of me because he did not recognize me and resented my intimate ministrations with the catheter! His recovery was absolute. He lived for several years and never had a recurrence of the attack, although, while in fair general health, he was known to have a moderate degree of chronic interstital nephritis and arteriosclerosis, with enlarged prostate gland.

Another case of this type was that of an Irish woman, aged forty-one, who entered my service in the Presbyterian Hospital. She was a chronic dipsomanic, being seldom sober for any length of time, although rarely ill from any cause. She was brought to the hospital in a semi-conscious condition with convulsions. She had complete aphasia and beginning paralysis of the entire right side of the body, which shortly afterward became complete, and there was also unilateral facial paralysis. The patient soon became profoundly comatose. The hemiplegia remained complete for about thirty-six hours, when a rapid improvement in the functions of the paralyzed muscles took place and she was able to speak distinctly. A week later she had a general convulsion, most marked, however, on the *left* side of the body. There was entire loss of consciousness after a short time. A right-sided hemiplegia recurred and lasted throughout the day, when it wholly disappeared, after an interval of about twelve hours. In this case it seemed evident that the chronic alcoholism was the cause of the temporary cerebral irritation. The patient had a considerable degree of arteriosclerosis. As she was discharged "cured" from the hospital, after a fortnight's treatment, no further information has been obtainable about her. The general physical examination of the patient showed no abnormality in any of the viscera. Her nutrition was good and she was not anemic.

A third patient I saw quite recently in consultation with two other physicians, and his case further illustrates the hazard of too hasty and definite prognosis. He was a man sixty-six years of age, who, for more than a decade had had diabetes, the sugar recently measuring as much as four per cent. He passed into sudden coma with quickened respiration which was evidently of a diabetic origin, but soon became totally hemiplegic on the right side. We all agreed that he could not live through the night, as he was developing pulmonary edema, and his entire condition was extremely critical, and we so informed his family. I was, therefore, surprised to be recalled to see him again twenty-four hours later and found that he had so far regained

*A paper read before the New York Clinical Society, November 25, 1921.

consciousness as to ask for food and to inquire who the strange nurse was who had arrived during his coma? He again lapsed into coma, however, and died a day or two later. In this case the primary coma was no doubt mainly of diabetic origin and the temporary improvement was due to the antidiabetic treatment which he received. Having assured the family that he could not possibly regain consciousness, it was somewhat embarrassing to find him able to speak intelligibly the following day!

A fourth case which I lately saw was that of a man 66 years of age with a marked arteriosclerotic condition and systolic pressure of 210 mm. He had a sudden right-sided complete hemiplegia and profound coma with a temperature of 103° F. I apologized to the hospital where I transferred him from his hotel, for sending in a moribund case. Next morning I found him wide awake and he greeted me with a "Hello Doc" and a hearty handshake with his right hand!

Two of these illustrative cases obviously were of toxic origin due respectively to alcoholism and acidosis and possibly the first one was also of some toxic origin, although it would have been difficult to discover its exact nature. In cases so plainly accompanied by profound toxemia, the prognosis had better be based upon the degree and nature of the toxemia rather than the extent of the paralysis, for while it is difficult to reconcile such distinctly unilateral loss of function involving a widespread area with the operation of a toxemia, cases of this type nevertheless are quite common, and if the toxemia can be overcome there is no ground for expecting continuance of the hemiplegic symptoms. In the case of the professor of physiology the existence of any definite organic lesion is also difficult to believe in view of the prompt recovery. The interference with cerebral circulation by either a thrombus or hemorrhage, however small, could scarcely in so short a time be compensated so fully by collateral circulation as to result in entire restitution of function within a few hours. The condition, therefore, in such cases would appear to be functional rather than structural. There is the theory of localized arteriospasm which has been advanced to explain intermittent claudication, angina pectoris, migraine, and various muscular cramps. This has much in its support, although in many such instances the symptoms usually do not last without remission for so many hours as do some of these cerebral cases. There are, however, many other transient cases in which the symptoms do not go on to complete hemiplegia, but are confined to incoordination of speech, oculomotor symptoms, partial loss of consciousness, and sometimes more or less facial paralysis. Such a condition I saw recently in a man 60 years old who had decided arteriosclerosis, an inactive liver, and prolonged constipation. He had half a dozen attacks of the nature described and in the one in which I saw him coma had lasted for several hours so that it was feared the attack was the forerunner of an apoplexy. Attention to diet and elimination of waste products entirely cured him, so that when I saw him a year later he had had no further seizure. In cases of this type, which rarely present a total hemiplegia, the possibility of infection from decayed teeth must not be overlooked, for sometimes it has bearing upon etiology and prognosis, as the following history illustrates:

Mrs. "A," aged forty-one, a nervous, active woman, had been feeling perfectly well, when, while singing in a church choir, she suddenly felt faint and went out into the fresh air. She at once experienced difficulty in speaking, her tongue feeling "thick," as she described it. She also said that she felt as if she had had a slight blow over the left parietal region. She managed to walk to her home, one block distant. The doctor who was summoned found she had a complete right facial paralysis, was strabismic and unable to speak intelligibly, although she knew what she wished to say. Her systolic blood pressure was only 130; examination of the eyes showed no abnormality; urinalysis was negative; blood examination was normal, excepting a slight anemia. The patient went to bed and within twelve hours her paralysis had wholly disappeared. Two weeks later I saw her and found her physical examination negative. She showed some evidence of fatigue and slight loss of weight with the moderate anemia above mentioned, otherwise she was not abnormal excepting that the teeth were found in exceedingly poor condition, there being several old decayed stumps and several capped-over ones. The systolic blood pressure was 128, and diastolic 84. The patient felt perfectly well and greatly resented insistence upon leading a less active life.

In this case there would appear to be two possible explanations for the paralytic seizure: (1) That it was of the nature of an arteriospasm, and (2) that it was due to a small thrombus of septic nature, the origin of the trouble being absorption from decayed teeth. The condition of the patient's heart and blood vessels should exclude cerebral hemorrhage. The Wassermann test was negative and the anemia was insufficient to be a factor in thrombosis.

In such a case where general directions could be followed, like properly regulated rest and exercise, diet, and the restriction of social and domestic activities, prognosis should be entirely favorable as regards the possibility of recurrence and the condition of the teeth should be remedied.

Heredity as a factor in inducing hemiplegia is a question which naturally greatly interests the laymen, and there are many persons who are firmly convinced that, because a parent or grandparent died from "apoplexy," they necessarily are foredoomed to the same fate. There are, however, several factors which enter into this matter which, in the absence of very definite statistics regarding it, merit consideration.

Apoplexy is a fairly common cause of death in the sixth and seventh decades of life, and the more lives which are saved in earlier decades through the conquering of infectious and contagious diseases the more survivors there necessarily are to die later on of something else. Moreover, apoplexy being common, the laws of chance would often give rise to more than one death from it in the same family quite independently of any hereditary predisposition. The same argument applies to deaths from carcinoma which formerly was so universally believed to be strongly hereditary. Sometimes, indeed, the inheritance of means to live in a certain environment is a more potent influence than actual physical inheritance. Thus in former times a man who inherited his father's wine cellar might acquire habits leading to alcoholism or gout, or of debauchery leading to syphilis, all of which might be antecedents of arterial changes favoring apoplexy. On the other hand, in a large number of cases of hemiplegia, particularly those occurring in women of good social class, no hereditary history of the disease is obtainable.

It is a very interesting fact that the incidence of hemiplegia, whether due to thrombosis or vascular rupture, tapers off very rapidly after the eightieth

year, so that in centenarians it is rarely observed. I have collected the medical biographies of over 100 persons who lived to be 100 years of age or over, and not one of them was hemiplegic, but seemed merely to die from a general deterioration—the clock runs down and stops, unless, as quite often happens, they die from acute gastritis from overeating or other forms of dietary indiscretion.

It is, therefore, quite safe both to reassure patients that they are not necessarily foredoomed to die of apoplexy, because of such a case in the family, and, if they be very old, that they are immune.

Another matter which greatly worries many patients in this sphygmometric era, is that because the blood pressure is high, they necessarily are going to burst a cerebral vessel. Of this it may be said that many hemiplegics do not have extreme hypertension and, on the other hand, we all see many patients with systolic pressure above 200 mm. who never have hemiplegia.

A man of sixty-seven years, whom I have been watching for some time, two years ago had a slight numbness and very slight diminution in power in the right arm and leg accompanied by quite transient loss of memory. He unfortunately discovered that he had an increase in blood pressure and acquired the sphygmomanometer habit, coming to me at frequent intervals to record his blood pressure. In fact at one time the systolic pressure rose to 210 mm., but has since then not exceeded 180 mm., and he cannot be persuaded that he is not doomed to hemiplegia. He is neither syphilitic, gouty, nor alcoholic. The kidneys are normal and he is really in excellent health. I do not suppose any insurance company would consider rating him in view of such a history, and he may yet die from an apoplexy, but I have felt justified in trying to assure him to the contrary. This case is typical of many which present great difficulty in prognosis, but I have been inclined to regard it as belonging to the group of transient toxemia cases, above described, with possibly an arteriospasm. The fact that his only vice is overindulgence in rich food lends support to this view.

It may be stated with regard to hypertension that patients in whom the diastolic pressure remains low are in much less danger of hemiplegia than the opposite group.

A very puzzling matter to be certain of concerns those mild attacks which may or may not prove the forerunners of apoplexy or hemiplegia, and this again is a subject one is liable to be cross-examined upon by both the patient and the anxious family. The following history is typical of a condition frequently regarded as a definite warning of what is popularly called a "stroke" soon to be followed by fatal termination:

A woman of seventy-eight with decidedly sclerosed arteries, slight corneal opacities in both eyes, and other evidences of senility, became suddenly confused, asking the same questions four or five times in succession. When I saw her she complained of feeling dazed and repeatedly passed her hand before her face as if to brush aside a veil. On being questioned she said the room looked natural and she recognized persons, calling them correctly by name, but she felt estranged and memory was much impaired. She had a very dazed searching expression, like one suddenly blinded, and speech was slow and thick. There was a slight deviation of the tongue toward the left. The pupils and all reflexes were normal and there were no sensory disturbances. After four or five hours the attack subsided, although it was not until the following day that the mental confusion wholly disappeared. Systolic pressure was 210, and obstinate chronic constipation had long been present.

This case seemed more like the forerunner of apoplexy than the preceding one, mainly on account of the evidences of senility and the marked arteriosclerosis, but more than fourteen months have passed and the patient has remained in excellent health. There may have been an arteriospasm, or possibly a miliary hemorrhage, or the attack may have been purely toxic, and yet I think one might more decidedly anticipate an apoplexy than in the preceding case.

In still another example of this symptom complex the patient was twenty years younger. After three or four attacks of sudden mental confusion in which, while at the dining table, he suddenly began to repeat the last word he was speaking and then stopped conversation altogether, having a vacant stare, he finally had an attack of coma lasting twenty-four hours. In this case the urine presented the picture of a sclerotic kidney and there was a tendency to intestinal obstruction with great abdominal distention. But two years have passed without the occurrence of any genuine apoplectic seizure.

The instances of hemiplegia which are clearly embolic as a sequence of vegetations upon the mitral value when non-septic at the time of impaction are not necessarily immediately fatal, and the chief danger lies in repeated attacks.

I saw a woman forty-six years of age who six years before had acquired a complete right hemiplegia without loss of consciousness, yet she entirely recovered by the end of a week. In girlhood she had had a rheumatic endocarditis which left her with a serious mitral lesion and decided compensatory cardiac hypertrophy. When I saw her six years after the first hemiplegic attack she was again hemiplegic upon the same side as that originally affected. She passed into coma immediately and died in thirty-six hours from pulmonary edema.

I do not believe that one who has had an embolic hemiplegia of such origin can ever be regarded as free from the liability of an ultimate fatal attack, although, as in the case just cited, the interval may be prolonged. However, when one considers the large number of cases of serious mitral lesions which there are, the wonder is that embolic hemiplegia does not more often result.

In the syphilitic cases of cerebral thrombosis which do not yield to neosalvarsan, and especially when complicated by alcoholism, the prognosis is uniformly bad. I saw lately a man 30 years of age who had had six neosalvarsan treatments without benefit. He had been drinking more than a quart of whiskey a day. One evening his masseur called to treat him but found him alone in his hotel room in a coma which he mistook for an ordinary drunken fit so he left him. Everything in the room was in disorder, with glasses broken and furniture overturned, and the patient's body was bruised from head to heels, in evidence of previous maniacal delirium. When I saw the patient next day he had a complete left hemiplegia. The systolic blood pressure was only 130 mm. and the spinal fluid was negative. There was Cheyne-Stokes respiration with a temperature of 104°, and in a few hours the man died.

Writers upon hemiplegia while entering fully into minute pathological descriptions of cerebral hemorrage, embolism, localized edema, thrombosis, and obliterating endarteritis, usually pass over very casually the question of arteriospasm of the cerebral vessels, causing temporary localized cerebral block. Necessarily this is quite empirical, as the cases are not fatal, being capable of neither postmortem nor

experimental demonstration. Yet some explanation is needed of the very transient duration of many cases of definite hemiplegia or of partial attacks which affect only the facial, ocular, and lingual muscles with mental disturbances. The absorption of a clot from either a hemorrhage or thrombus can scarcely be rapid enough always to account for the prompt recovery, and it is similarly questionable whether collateral or anastomotic circulation could become adequate in such brief periods of time. Moreover, it is difficult to conceive how mere toxic interference with brain function can produce such well-defined localization without the aid of mechanical interference with the circulation which arteriospasm implies, and this, compared with the analogy of arteriospasm elsewhere in the circulation, such as is claimed in explanation of intermittent claudication, etc., must constitute the chief basis of the argument.

At all events, this conception is a fairly satisfactory one for the physician, and it may be used to afford great relief to patients who are terrified by the dread of genuine apoplectic seizure. There is one other possible explanation of the curiously transient yet very definite attacks of hemiplegia, and that is pressure from a localized cerebral edema of toxic origin which, being capable of more prompt reabsorption than a blood clot, restitution of normal function quickly ensues. It is also conceivable that certain brains, more readily than others, from some minute anatomical difference, develop prompt compensation, so that when particular fibers or cells are put out of commission, either through sudden interruption of the circulation which supplies them or through localized pressure, others soon take over their temporary function for them.

In this connection I may refer to the very interesting localization of a brain lesion due to a definite toxemia which has so often been observed in fatal cases of carbon monoxide poisoning that it may be regarded as pathognomonic. In six out of nine fatal cases of illuminating gas poisoning which I have elsewhere reported, the brain showed marked generalized congestion of the white matter, pia, and arachnoid, the cerebral arteries being greatly congested, and, in addition, in those cases in which the patient lived long enough for it to result, there was softening of the lenticular nucleus which, as Otto H. Schultze has pointed out, is due to the peculiar curvature of its nutrient vessels in which thrombosis frequently occurs. None of these patients in this series was hemiplegic but the autopsies illustrated an interesting brain localization of the effects of toxemia.

Where experimentation and post-mortem demonstration must necessarily be lacking, the field is still open to cumulative clinical experience and impressions, and it is from the latter point of view that I have given these illustrations, the main conclusion being: First, that clinical definite transient hemiplegia is of frequent occurrence in middle life without necessarily implying the existence of any threatening permanent deterioration in the cerebral circulation. Second, that patients are not invariably foreordained to genuine apoplectic stroke through either heredity, excessive hypertension, or the occurrence of transient hemiplegic symptoms.

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TREATMENT OF GONOCOCCAL INFECTION IN THE FEMALE.*

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THE treatment of any disease depends on a correct diagnosis. In no affections is this more important and in few is it equally as momentous as in venereal infections. The frank cases cause little doubt but there is hardly a just measure of the difficulty in the masked forms of gonococcal disease. In taking the history no respect of persons must be had because any person of the community may have acquired the disease innocently or immorally. The establishment of infection in fact and in form is the first essential because nongonococcal cases are often as difficult as the gonococcal cases. Luys on the subject of nongonococcal organisms says that the most important are the streptococcus, staphylococcus, pneumococcus, *Micrococcus fullax, Micrococcus pyogenes aureus, Micrococcus cereus albus, Bacillus typhosus, Bacillus coli communis, Bacillus diphtheriæ, Bacillus tuberculosis,* and various sarcinæ. To these may be added the influenza bacillus, pseudodiphtheria bacillus, *Micrococcus catarrhalis, Treponema pallidum,* and bacillus of Ducrey. Norris gives the following six Gram-negative cocci: *Micrococcus catarrhalis, Micrococcus intracellularis* (meningococcus), two forms of coccus from nasal discharge in Hartford's case of influenza-like epidemic, another coccus from the urethra (unidentified) and the *Micrococcus melitensis* (Malta fever). From this it will be seen that the accurate diagnosis of gonococcal infection is not easy. I believe that in the female at least eight slides should be taken in pairs from the urethra, vulva, vagina, and cervix.

The second set of four slides controls the first set. Cultures are of supreme importance. Cultures cannot be omitted if real accuracy is aimed at. Reimplantation is often required to prove the exact nature of the infection. As in diphtheria of the throat, the local condition may be very favorable but the possibilities of the dormant organisms are very great if they are of nocuous type.

The most favorable time is during the congestion just before and just after the menses, because organisms in the depths of the mucosa are more apt to appear on the surface than when the parts are quiescent. If douches have been taken by the patient they should be stopped for forty-eight hours before the specimen is taken. Pressure on the mucosa with a blunt instrument, such as a hairpin in the urethra or a dull curette in the fornix and cervix, will often express a good specimen.

A few years ago I noted the following in literature but have not been able to trace it. If any hearer or reader of this paper knows of the correct reference I shall be glad to receive it. The French took a number of prostitutes, examined them for infection and found a small number apparently free. These negative women were then subjected to intercourse. The men wore covers so that infection from them was impossible. Immediately after the intercourse another examination showed many of these women to be infected because the congestion

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intercourse had brought the gonococci to the face. This important observation shows how ficult it is to make a final diagnosis from specimens alone and also how one man will escape infection and another receive it from the same woman hort time apart.

An interesting case in private was that of a ng woman who on her return from Europe acted the sexual embraces of her fiancé who a few s previously had become infected by another nan. Of the eight slides taken, only those from urethra contained the gonococcus which was troyed by proper abortive measures. The girl had an old injury of the vulvovaginal gland on right side which caused physical inconvenience. er the gonococcal infection was destroyed the nd was dissected out and examined and found be free of gonococci. In this case the absence all acute symptoms in the gland ruled out gonocal infection, although my staff were of the nion that such might nevertheless be the case il the microscope proved otherwise.

The difference in diagnosis between the female escent or excited, is revealed by the following e: A shop girl infected a man who was support- her very soon after their liaison began. Eight es were taken. Only the urethra was apparently olved. She menstruated in a few days. Eight es then prepared revealed the gonococci in the rix and cul-de-sac, although active treatment had n given. She did not have acute disease but onic disease, masked except directly after menial flow and during intercourse, because the norcongestion of each of these processes brought gonococcus within reach of the examining rument.

There are certain clinical facts about cases which dominate over microscopical findings, at least il one or several reexaminations are made. On basis I recently disputed the diagnosis of ococcal infection in a young woman who had en birth to a child two weeks previously. A harge developed which was said to contain the ococcus but the clinical progress of the case such that the condition could not be the gonoal. I think one should be very cautious about ng an opinion when the clinical and the microical factors do not agree.

another case venereal excesses were denied a girl engaged to be married. I saw her in the st of a gangrenous appendicitis, operated and id a double pus tube as well as the appendix. right tube was as large as the adult thumb and left as large as a lead pencil. Both were nonerent but exuded typical gonococcal pus. There little vulvovaginitis. The facts were probably having been in the Bedford Reformatory for nen, this girl knew how to keep her vagina and a clean but could not prevent extension of the ess upward. Later it was found that the cervix fornix contained the gonococcus. Here the ical conditions prior to the operation were deceptbut at operation no question of the lesion ained.

nother postpartum case was accused of gonoal infection and about to be discharged from a sing home in disgrace. Because the disease had run like wildfire into the uterus, tubes, ovaries, and peritoneum I decided that the case was probably not gonococcal. Six slides and four cultures proved that the discharge was due to an overgrowth of ordinary organisms. On account of the patulous cervix I omitted its specimen lest penetration of it might also infect it.

A woman of refinement had become inoculated by a clubman who was suffering from an old infection supposedly cured. There were hardly any clinical suggestions of the disease because the patient was seen so early. Suggestive subjective symptoms prevailed on me to make numerous smear and culture specimens which proved the woman to have the incubation period of urethritis. It was stopped by proper abortive measures.

These cases show the need of simple common sense in making and interpreting specimens and serve to introduce the importance of the social aspect of the disease. The diagnosis is so important that it can never be slighted and that it places on each physician the moral obligation of putting himself into the position of the patient. No error will then be invited by carelessness. If the disease exists it must always be known at least to the physician and in most instances to the patient.

The medicolegal aspect is another important phase. The followup systems in hospitals and the welfare work of social agencies at the present time is bringing lay-workers into contact with the venereal disease secrets of individuals and sometimes families. It becomes necessary to draw the line strictly between such information or part thereof which belongs to the official records of the case in the hospital or social agency and that which must remain professionally sacred. In point is the young woman, just noted above. The social worker in charge of her case wished to tell her future husband of the existing gonococcal disease. I convinced her that her duty and our duty consisted solely in relieving the patient of the operative and nonoperative results of the disease and that all moral obligation toward her future husband was her own. We could not possibly interfere with it any more than we could possibly betray her on the witness stand unless the girl under oath had waived her rights to professional privilege. I hope that the social worker obeyed my injunction not to converse with the fiancé unless she previously obtained the girl's consent under oath before a notary. I added that it would be better to have the interview in the patient's presence, and best of all to have her talk with the man herself in the presence of the social worker.

Treatment is preventive as a sociologic method and abortive or curative according to the age of the infection. The preventive measures are largely educational. Perhaps the most difficult lesson to impress is that no matter how fine looking and attractive a man may be he is not safe because these very characteristics make him much more apt to be sought after by women of all classes. I find it very difficult to teach young men that the pretty women are almost sure to be infected. Young women will not remember that the man who seeks them sexually is rather sure to have done it with other women of whom any one may have infected him. Conversely I find it almost impossible to have the young men understand that the girl who accepts one man

sexually is almost sure to have had a number of others, any one of whom may have infected her. Lastly it is difficult for the community at large to understand that this biological equality of the sexes exists. I am of the opinion after many years of practice in this field that only one thing makes the average woman less promiscuous than the average man and that one thing is fear of pregnancy.

I have often been asked the question "Is venereal disease increasing?" I do not believe that it can be answered because there are so many factors to influence final judgment, but I am morally certain that clandestine intercourse is rapidly increasing. There are several reasons. The birth control campaign is rapidly removing the aforesaid fear of pregnancy and prophylactic measures are rapidly dispelling the dread of venereal disease. Civil conditions are such that young people are required to wait for marriage until they are nearly thirty instead of uniting in marriage about twenty. It is not thinkable that many accept in sexual idleness the loss of the best years of their sexual life, namely those between twenty and thirty. On this point a shop girl, herself the common-law wife of a decent man, told me that she believed that fully 75 per cent of shop girls were guilty of clandestine sexual life. I am rather inclined to agree with this opinion whose terms do not mean commercial prostitution.

The chemical means of birth control are being handed about from woman to woman in a way that is appalling. Only this month I examined the wife of a college friend who used such means for the first few years of married life. A friend had passed her own prescription along to her. She has remained childless, so far as I can see only because she has induced a hyperacid chronic vaginitis. Whether I can ever restore the mucosa to its natural condition remains to be seen, but among other things I told her that she had only herself to thank for her state. I am old fashioned enough to stick to the doctrine that people who do not wish to accept parentage in the normal way should not get married. They will then leave that much more opportunity for men and women who have a better viewpoint. I have no polite language in which to condemn birth control, partly because it is adding materially to sexual immorality.

It is well to teach the young women as I teach the men that none of the well-known chemical means of avoiding infection is infallible. The infection may be drawn into the uterus before the application is made. Nearly every specialist sees gonococcal infection of the cervix which apparently precedes the disease elsewhere. There can be no other explanation. Must of these chemical measures are used in overdose: too strong, too frequently, or too roughly. Vaginitis ensues which is as hard to cure in some patients as the infection.

There are at least two forms of prevention—one concerns the patient (as already briefly stated) and the other society. The patient must receive written or printed instruction concerning the dangers to her eyes from infected fingers and the dangers to innocent persons, especially children, from the same source. No matter what the quality of woman may be she must be instructed about the absolute unfairness of having intercourse until she is known to be cured. Therefore wives who have erred from the path of virtue, business women who are practising clandestine relations, and professional or semi-professional prostitutes all fall within the same category requiring the same instruction. In the last analysis society loses as much through an infection of the male as it does through an infection of the female no matter what the circumstances of said infection may be—innocent in wedlock, more or less innocent in perhaps a real love affair, or guilty in a purely commercial relation. I do not believe that the average woman will ever see the problem in exactly this light, no matter what her social standing may be, any more than the average man is able to see it, so far as my efforts at instruction have indicated.

Under prevention must be classed the all-important detail of reaching and curing the carrier. Almost insurmountable barriers cross the path of this scientific duty. Of course women cannot tell who infected them among several lovers any more than men can answer the same problem. The family doctor of the carrier is in duty bound to pronounce his patient "all right." Sad to relate, he often does so in ignorance bound because his diagnostic technic is very indifferent or inadequate. His diagnosis is all too frequently of the snap type.

The woman does not wish to betray her lover in any way. A reversal of chivalry occurs in which the man is the object not the subject.

It is the duty of every physician, in my opinion in public and in private work to endeavor to reach the carrier because he is often guiltless—in the sense that a "quick, sure cure" treatment has been given him without any bacteriologic diagnosis of the exact nature of the infection, or a bacteriologic decision of his cure. This repeats exactly the circumstances in women said to be well who infect large numbers of men.

At a recent clinical meeting two men with gangrene of the skin of the penis were shown and fully discussed. When I asked what effort to reach the woman responsible for the disease had been made the answer was none. My rejoinder was that the cure of the men without reaching the woman hardly half the professional duty toward society had been done. I never expect to alter that opinion. It may be a generation ahead of the times, but it is the coming opinion if the medical profession is ever to gain control of veneral disease.

Under the heading of prophylaxis falls the proper concept of what constitutes a "cure." This is noted in the last part of this paper.

The abortive treatment requires application within twelve hours after possible inoculation. I remember one patient of the ultrafastidious class who was such a fool that she would leave her husband for six months at a time and then expect him to stay faithful. It never dawned upon her mind that she was basically and primarily unfaithful to him in leaving him. He became inoculated as part of a college celebration. Soon after her return after several months' absence his wife requested intercourse, a thing which she had never before done. The man tore the cover he used and brought the woman to me about twelve hours later. I aborted the infection. Part of our social duty is to teach women that they have no right to leave their husbands many months at a time.

The chemical formula for abortive treatment is not important provided it is a recognized true antiseptic without great irritating power. I place a firm reliance on older pharmacopœial drugs in preference to the newer semiproprietary and proprietary preparations. The main difficulty is to have patients remember and follow warnings to continue this treatment for at least five days, because they represent half the ordinary incubation period.

In the female there is no sealing-in method as in the male, but light tampons soaked in appropriate medicine are a good substitute.

As in the male, I doubt if it is wise to paint the vulva and vagina of a suspected case with strong silver nitrate. The reasons are alike in both sexes. One may not reach all the infection. The reactionary inflammation becomes a wonderful soil for extraordinary extension of the disease.

In the curative treatment there is no single quick cure or sure cure remedy. In my opinion the greater science leads away from proprietary and semiproprietary remedies and impresses the value of older drugs. Antiseptic douches must be frequent, copious, hot, and retained. Their strength must not be irritable to the normal mucosa. Such douches are better than douches infrequent, scanty, lukewarm or cold, and concentrated and irritating. Lying down is the only position, and the douche should be followed by rest on the back for thirty minutes. I therefore prefer hot potassium permanganate, 1 in 8,000, increasing to 1 in 4,000, four times daily one or two gallons at a time, 110 to 115 degrees Fahrenheit within tolerance. A long douche nozzle reaches the utmost limit of the vagina. The fifteen to thirty minute rest on the back for retaining the douche is analogous to holding the hand injection in the male urethra for ten minutes. But how many business women clandestinely infected can carry out these steps? How many married women about whose infection there is suspicion can do it? We are all familiar with the irremovable obstacle comprised in the struggle between civil conditions and professional requirements. What millennium will be ours if we could only carry out treatment with total disregard of civil conditions. If the disease is well established I have been told that under an anesthetic the vagina may be painted thoroughly with 10 per cent. nitrate of silver. Most women whom I see either have the disease too early or too late for this step, namely a mild vulvitis has begun suggesting the wisdom of not causing an active chemical inflammation or a cervicitis is present from which reinoculation of the vagina would occur if this silver nitrate wash were to succeed.

In the uterine lesions, cervix or body, mucosa or muscularis, the more serious forms appear. Rest in bed is desirable but rarely possible in vaginitis, but it becomes essential in upward extensions. No measure will definitely limit the disease from such progress on account of continuity of mucosa until even the tubes, ovaries, and peritoneum are involved. Expectant measures give the best results and excite the fewest later complications. Antecedent urethritis, vulvitis, and vaginitis must be included in the measures.

Gonococcal cervicitis must be distinguished from syphilitic, chancroidal, neoplastic, and tuberculous forms. Space eliminates the familiar details. In the management of these cases absorption must be prevented or controlled and good health maintained or restored, otherwise the case will be obstinate. Abortive treatment is possible only in early superficial cervicitis and consists of an antiseptic bath through the Ferguson speculum after mopping the mucosa clean. The curative measures apply chiefly to the chronic stage because little can be done in the acute stage. Clinging discharge and granulations are removed down to the bare mucous membrane foci of the disease. Instillations and applications are much safer than injections, augmented by tampons. Granulations require caustic and curette and cysts incision, drainage and mild caustics.

Endometritis must be diagnosticated from tubal disease and suppurating fibroids and other suppurative infections of the linings. The expectant management with ice bags, hot douches, perhaps in the sitting posture to avoid penetration is best. According to the position of the uterus, the patient may sometimes be placed in various postures so as to facilitate drainage. Not much else may be done until the chronic stage, when two things must be accomplished—drainage and the restoration of the lining to a healthy condition by the gentlest available measures. Curetting is done at the present time less frequently than in former times.

Tubal and ovarian complications are almost the last step in the progress of the gonococcus inward. Localized peritonitis is almost always present. More extensive peritonitis is not part of the purpose of this paper and will be therefore omitted. Gonococcal salpingitis must be recognized as different from catarrhal and tuberculous forms and from cystic ovary, solid tumor of the tube, extensive pelvic cellulitis, tubal pregnancy, and appendicitis. Acuteness, chronicity, and complications determine the forms of treatment. The patient is always sick enough for bed and is comforted by hot or cold water bags, coils, or douches. It is said that frequent changing of the posture of the patient may prevent adhesions. Opiates are required for pain, and elimination is indicated through bowels, kidneys, and colonic irrigation. Serum therapy is still in doubt. Operation is to-day almost always postponed until subsidence of all symptoms and then conservative measures have supplanted the radical ideas of twenty years ago, so that as much as possible of tubes, ovaries, and uterus are not sacrificed.

The foregoing sketchy remarks indicate that the older methods have not changed, chiefly because they cannot be improved each in its own particular sphere, but with the development of better electrical generating apparatus and better electrical instruments for applying the current, electrotherapy is to-day demanding more and more attention and is receiving more and more respect.

There are a few basic principles which are altogether too often neglected. The patient must not be hurt or frightened; electrotherapy must be employed to augment all other measures and not necessarily to supplant any; the current must produce profound circulatory effect of creative character and it must be opposed to the circulatory condition of indolent character due to the disease; the modalities must be varied so that similar circulatory effects will be produced through somewhat different influences; and finally the electrotherapeu-

tic measures must leave no evil aftereffects. If these simple principles are obeyed little trouble will be encountered.

For the maximum results the treatment must continue for not less than twenty minutes, preferably thirty minutes and often forty-five minutes. Their frequency must vary from every day to once a week, according to circumstances. Their potency is to be measured by clinical results rather than by meter alone. In general it is probable that there is little choice of current provided the circulatory influence just spoken of is obtained. I am convinced that in some patients a particular current will be of greatest value, contrary to the average experience or clinical expectation. For example, I have two male patients each with prostatic disease. The one finds great benefit from diathermy and the other from sinusoidal combined galvanism and faradism. In each the results are about equal. I cannot explain why currents so different should produce equal results in about the same character of disease.

In urethritis, vulvitis, and vaginitis the glass electrode adapted to the part is serviceable. Its vacuum should nearly equal that of the standard *x*-ray tube in order to obtain maximum actinic effect. The correct tube gives a bluish white fluorescence and the incorrect tube a reddish blue or bluish red. Helium gas pumped into the tube after the vacuum is said to increase its efficiency. When properly applied, the actinic effect will aid in destroying the infection, in allaying congestion, and in decreasing bleeding. These tubes are best activated from the negative pole of a 16-16 high speed static machine, with spark gap 1 inch and I milliampere of current. The positive side of the machine must be grounded. It is possible to alternate the high frequency current with the static current resulting in a more heating and a less actinic influence.

In the uterine complications during the acute stage the *x*-ray obtained again from the static machine is of value, alternating with light as a decongestant of the deeper parts and a corrective of the irritation of the skin. The value of *x*-ray produced in this way is high penetration, deep actinic influence, and little burning power of the skin. The best tubes back up a spark gap at least 5 inches, which with the accumulating ball electrodes, is equivalent to a 10-inch gap in the ordinary *x*-ray induction coil machine. From 2 to 2½ milliamperes of current are used. Therefore during thirty minutes of application the patient receives 60 milliampere minutes under a voltage which is said to be not far from 127,800 by Harris and Riess, independent and competent observers, using a 15 centimeter gap and balls 0.866 inches in diameter.

In the chronic uterine lesions drainage is secured by opening the cervix with the native galvanic pole using a current of 5-10 milliamperes for a few minutes, until the cervix relaxes around the instrument. Then a larger one is used until the cervix admits one a quarter-inch in diameter and drainage is free. A granulating mucosa is easily removed with a light packing of 10 per cent. zinc chloride solution over night. Thereafter applications are made with the positive pole wound with cotton, dipped in mild strengths of such electropositive elements as zinc and copper. The negative pole must be used with such electronegative elements as iodine, chlorine, and the radicals of salicyclic acid and sulphuric acid. For subinvolution and allied conditions diathermia is of great value, using 750 to 1200 milliamperes within tolerance. Electrodes of equal size must be employed, otherwise a burn may be made at the small electrode. One electrode is placed on the abdomen and another on the buttocks. A third may be placed in the vagina, connected with either of the other two, or the other two may be connected together. *X*-ray treatment is greatly augmented if diathermia is used before it in this manner. Likewise diathermia will augment other treatment. If spasticity is present diathermia tends to relax it and if the muscular coat is atonic it tends to restore it.

The tubal and ovarian and peritoneal complications require about the same electrotherapeutics as the uterine. Although much progress has been made in electrotherapeutics within recent years it is certain that still greater progress will be made in the ensuing years of the present generation through improvement in apparatus for producing the current and instruments for applying these measures.

I trust that at least some of the straws scattered in this paper will point the direction of the scientific wind of the present time. Undoubtedly a larger and larger number of specialists are beginning to realize that operations are not unmixed blessings, and further that they are the last resort and no longer the first resort.

I have personally had two interesting tubal cases recently. A nineteen-year-old girl had been impregnated illegitimately and later infected with gonorrhea. After the baby was born she had rapid onset of uterine and tubal conditions. Fortunately they were relatively mild. In a person so young operation was out of the question unless totally unavoidable. I gave her the foregoing treatment and had the pleasure of seeing the infection in the tube on the right side almost totally disappear and the tube on the left side evacuated spontaneously into the uterus. When last seen the girl still needed treatment but these two successes had made her wonderfully better than at any previous time, and vastly better than any operation could possibly have left her. Since this paper was read, this patient has reappeared at my office about 4 weeks pregnant.

Another woman had had one pus tube and ovary removed and had a certain amount of uterine disease left behind. She did not desire any more children but she wished relief from the chronic discharge. After about three months of the same treatment practically all discharge had been eliminated. Then to my surprise and her own unspeakable annoyance she conceived again. She was uncontrolled in her anger when I refused to induce an abortion because she held my treatment responsible for the pregnancy. She put me into the position of the Presbyterian salvation. I was foreordained to be damned if I did and damned if I didn't.

A statement of the standard of cure has a prophylactic value as well as a restorative value. The destructive quality of the gonococcus makes complete cure in the sense of restoring the mucosa more or less universally to its former normal condition almost impossible. Nevertheless, a physiological standard of cure is fortunately in a great number of cases possible. This should be aimed at to the

limit of our own ability and the willingness of the patient to follow advice. Of course bacteriological cure is always to be reached in terms of destruction of the gonococcus or its allies as revealed in many tests by smear and culture made at various intervals and under different conditions such as before and after menstruation, after intercourse if practicable and sometimes after mildly irritating applications. The disease as a bacteriologic manifestion must be abolished. It nearly always is. Failure usually follows the ignorance and disobedience of the patient rather than indifference of the physician.

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ANTISEPTICS IN THE TREATMENT OF INFECTED WOUNDS.

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Before the Great War, treatment of wounds was usually directed towards rendering them free of débris and the removal of the discharge which had accumulated. During the war the pendulum swung back again to where it had been years previously, and the value of active antiseptic treatment of infected wounds was thoroughly demonstrated. In the treatment of infected wounds, as in the treatment of every other condition which occurs in medicine and surgery, it is well to thoroughly understand and appreciate the principles upon which the curative measures are based. As at present the antiseptic method of wound treatment is most in vogue, it might be well to review as briefly and as concisely as is compatible with thoroughness, the means by which bacteria are destroyed. I shall then review the mechanical, physical, and chemical methods which cause destruction of bacteria.

Among the mechanical methods may be grouped those which cause a thorough eradication of destroyed and devitalized tissues, with their contents of bacteria. These measures include scrubbing, excision (under the form of débridement) and active scraping away of harmful tissues. Among the physical methods are those by which the physical properties of bacteria are interfered with, or by which destruction of bacteria is caused by changing the osmotic relationship existing between the bacteria and the surrounding media. This activity is manifested in two ways: First, by plasmolysis and second by plasmoptysis. Under the physical methods we must consider the destruction, including the destruction by heat or cold. Under the third variety of bacterial destruction, that is, the chemical, we may include digestion by ferments or the destruction by chemical agents of one kind or another. Under chemical, we classify the nutritional changes which may take place in bacteria and lead to their destruction.

With the above brief indication of the methods of bacterial destruction, we shall now consider the destruction of bacteria more in detail. First, the destruction by plasmolysis and plasmoptysis and then, as we advance, further methods and more definite means will be defined.

To aid in the elucidation of antiseptics we may recall that bacteria are destroyed by:

I. *Plasmolysis.*—Should the solution surrounding bacteria be of a higher osmotic tension than the contents of the bacteria a dissolution of the bacterial protoplasm takes place. This reaction is termed plasmolysis. Because the molecular weight of the fluid outside the bacterial wall is greater than that inside the cell wall, in order to equalize the weight, fluid passes out of the bacteria into the surrounding media. The water passes from the cell through the cell membrane more easily than do the contained salts. Consequently the protoplasm retracts from the cell wall and protoplasmic devitalization, and even death, results. The following facts may be of interest, namely: (*a*) Old bacteria plasmolyse more quickly than young bacteria. (*b*) Gram stained bacteria cannot be plasmolyzed and contain more water; however, (*c*) Gram stained bacteria are easily digested in the gastric juice. Gram positive bacteria are (*a*) *tubercle bacillus*, (*b*) *Pneumococcus* of Frankel, (*c*) *streptococcus*, (*d*) *Streptococcus erysipelatis*, (*e*) *Staphylococcus aureus, albus, vitreus*, (*f*) bacteria of hog cholera. Because of these facts and the well-known resistance of living cells to digestive ferments, it may be possible in the above type of infections (Gram-positive bacteria) to combine an antiseptic with such a digestive ferment that the activity of either will not be neutralized by the other. As yet no such combinations have been devised.

In this connection it is well to remember that vegetable cells are very rapidly killed by 1/5 normal sodium chloride solution which is saturated with iodine. However, in this case, plasmolysis does not occur, for the iodine enters immediately into a chemical reaction with the surface layer of the protoplasm and abolishes its semi-permeability for the sodium chloride. On the other hand, one may produce plasmolysis of bacteria with this very same solution, if sufficiently weak in iodine, probably a ½ per cent. solution (A. Fischer). In this strength the iodine penetrates more slowly through the external membrane of the bacteria (Wells, p. 499).

II. *Plasmoptysis.*—A lower osmotic tension in the surrounding tissues causes fluid to pass from the cell into the surrounding media with the consequence that the cell contents swell, until the cell wall gives way at some point, then the contents exude as glistening drops which may become detached from the wall and escape free into the tissue juices. Not all bacteria can be made to undergo this change. Bacterial spores are so well protected by the membrane surrounding them that they are not affected by sodium chloride solution, distilled water, or concentrated alcohol. It requires days for a 4 per cent. carbolic solution to kill anthrax spores, while adult bacteria are killed in from two to ten minutes by a 1 per cent. solution corrosive sublimate. A 1 per cent. solution kills anthrax bacilli in ten minutes, but for the spores it requires two hours. (Wells, p. 499.)

III. *Digestion by Ferments.*—The digestive action of ferments (trypsin, etc.) and blood sera may recommend them as of mild antiseptic value in some cases. Müller and Gergo believe that methods of treatment in which digestive ferments are used are especially indicated in abscesses of the soft parts with the exception of the following: (1) A disproportionately large abscess; (2) those of deep loca-

tion; (3) in great weakness of the patient; (4) when the abscess is of an inflammatory tuberculous origin. Also, if there is no abscess, only a diffuse inflammatory infiltration, the antiferment treatment is of no value. Trypsin digests Gram-negative bacteria. Gastric juice digests Gram-positive bacteria. One per cent. potassium hydrate dissolves only Gram-negative.

IV. *Chemical Toxic Substances (Bactericides).*—If from the surrounding media a chemical toxic substance enters into the bacteria, death occurs. Such a chemical destructive agent is called an antiseptic. Its activity depends upon (1) its solubility in water or other suitable media. This is a determining factor. As a rule, the more soluble in water an antiseptic is the greater is its bactericidal power. Since bacteria are colloids and lipoids suspended in a soft medium containing different salts, therefore the antiseptic power of a substance varies according to:

2. Its solubility in the lipoids of the bacteria, when it is exhibited in the form of (A) organic combinations of mercury, iodine, bromine, chlorine; or (B) organic disinfecting media, such as phenol, cresolin, and alcohol*; preparations which are easily soluble in lipoids; (C) organic acids as acetic and formic acid; (D) alkalies as ammonium hydroxide.

3. The activity of a bactericide depends also upon its power to coagulate protoplasm. Coagulation may be produced by haloids, as iodine, bromide, chlorine; by corrosive metals, mercury, etc., by acids, as picric and osmic acid and by strong alkalies. Iodine vapor penetrates the bacteria the easiest and gives excellent antiseptic results. Mercury is the best of the soluble coagulating media at hand. One per cent. solution of the bichloride kills in a short time all varieties of pathogenic organisms. A dilution of from 1-100 to 1-500 will kill in a few hours, even the spores of anthrax. Usually an equal part of sodium chloride is used with the mercuric chloride, because the sodium chloride hinders the coagulation of the albumin by the corrosive and renders possible the permeation of the mercury deeper into the tissues. In old wound secretions there are formed small coagula, but these quickly dissolve as double salts of mercury albuminate and sodium chloride. The usefulness of mercury is limited, because in weak solutions it injures the tissues locally and in concentrated solutions, through absorption, it injures the kidneys and intestines, and the central nervous system. Silver salts are stronger antiseptics than mercury. They form a union with albumin. The soluble organic silver salts, as argonin and protargol are very active and serve as disfecting media for mucous membranes.

Antiseptics which act by disassociation or coagulation of the protoplasm may be classified as follows:

A. Salts of the heavy metals, as calcium in the form of quicklime, iron, copper, lead, silver, bismuth, zinc, arsenic, mangan, etc.

B. Inorganic, as nitric and sulphuric acid, which are not directly used as antiseptics: Sulphur dioxide (SO_2) was long used as a room disinfectant. Picric acid, which is very useful in the first dressing of wounds, where it seems to reduce greatly the tendency to infection: Chlorine in the form of acids or of salts acts very efficiently. The best known of these is the hypochlorite in the form of Dakin's solution, chloramine or dichloramine. Part of the effectiveness of the chlorine derivative is due no doubt to their ability to react with proteins with the formation of soluble products. However, as shown by Reiman and Magoun, dichloramine-T, in 7½ per cent. oily solution, does not kill intestinal bacteria. The experiment was as follows: The sigmoid was cut across and the anastomosed end to end, without clamps. Feces were allowed to contaminate the peritoneum. Then 7½ per cent. dichloramine-T was dropped on the infected field. All the animals developed peritonitis.

C. Organic antiseptics, as iodine, bromine, formaldyehyde-hexamethy lenetetramine, aromatic chloramines, phenols, naphthols and derivatives (lysol, cresol, creolin), dyes, as malachite green, acriflavine, etc. (Dakin and Dunham.) Lambert according to Fowler (*Annals of Surgery*, lxvi, 55, 92) has shown that iodine alone of various antiseptics tested will kill bacteria rather than tissue cells. A growth of cells occurred after exposure to a 1-2000 solution of iodine for one hour, a strength sufficient to sterilize the tissues completely in most instances. This I have repeatedly demonstrated to my own satisfaction and have found the most efficient antiseptic for continuous application (clinically) to be iodine 0.25 per cent. in a hypertonic salt solution (hot).

4. The bactericidal efficiency of a substance also depends upon its power to cause "de-emulsification of a colloidal suspension of some constituent protein, essential for the stability of the organism," according to Dakin quoting Cooper (*Biochemical Journal*, p. 175, 1913). This is the manner in which phenols act as antiseptics.

5. Ionic disassociation of antiseptic salts in solution partly determines the antiseptic power of the exhibited substance. If the amount of free metal in solution is very great the antiseptic power is high. This power is exerted through the chemical reaction of the metal with the "protein or the other constituents of the bacterial protoplasms."

*Alcohol in concentration and dilution acts in two different ways: A. In concentration, *i.e.*, absolute alcohol acts by withdrawing water from the cells, in other words, causes death the same as does drying. The spores, however, remain alive. B. Diluted alcohol, on the contrary, is directly absorbed by the cells and causes death by its poisonous properties. Alcohol is most active in a percentage from 50 to 80. According to researches which I have made the greatest activity is at dilution of 50 per cent. A loop full of alcohol at this strength killed staphylococcic colonies plated on agar, at 98.6° F. The method of experiment was to take a loop full of an active staphylococcic growth and implant it on a agar plate. It was then incubated for two hours and the size of the colony noted. A loop full of alcohol (using different dilutions) was then spread over colonies of the same size. The plates were then placed in an incubator. After 12 hours a subculture was made. It was found that 50 per cent. alcohol had the greatest antiseptic activity. After its use, there was no increase in size of the colony and no growth from a subculture. Alcohol also, because of its penetrating power is an efficient vehicle to carry antiseptic media in solution. This was demonstrated by Seelig and Gouls. (*Surgery, Gynecology and Obstetrics*, 1911.) They also found that the higher concentrations of alcohol penetrated animal membranes more quickly than the weaker concentrations. Ether or benzine also act upon the lipoids. Since acid fast bacilli contain a high percentage of fatty matter, they are easily acted upon by the above antiseptics. Tubercle bacilli contain 26.5 per cent. fatty matter. (Wells.)

6. The activity of the antiseptic substance depends also on the media in which it is dissolved; as in watery solution an antiseptic or disinfecting substance possesses the strongest activity. If albumin is present in the surrounding medium (say blood serum), it forms a firm union with the antiseptic (if in the form of metallic salts) much quicker than does the albumin of the bacterial cells, and consequently reduces the activity of the antiseptic. In the presence of albumin, the antiseptic must be used in a more concentrated form than when it is in a pure watery solution. However, there is at least one exception to this: Acriflavine will kill in 1/10 the strength in the presence of serum that it will when the organism is suspended in peptone solution. Some of the salts of blood serum, such as the phosphates, precipitate the antiseptic, especially if it is a metallic salt. Phenol and kresol dissolved in oil have little activity. Heat stimulates the disinfecting power of practically all disinfectants. The presence of pus or of serum usually retards the activity of an antiseptic, in some instances as much as two hundred times.

7. The activity of a disinfectant also depends on its power of oxidation as is seen in hydrogen peroxide, which may act as a powerful antiseptic. The more nascent the oxygen the greater the oxidizing power and the stronger the antiseptic activity. Other chemicals, as those belonging to the chlorine group, also are strong oxidizers.

8. The greater the concentration of the antiseptic solution, the greater is the destructive action upon the invading bacteria, but at the same time the body cells and the leucocytes are destroyed in increasing ratio. However, antiseptics in the concentrations ordinarily used, exert but little influence on either the activity of the leucocytes or the vitality of the tissue cells.

9. The solvent action on necrotic tissue is also a factor of importance in reinforcing the activity of an antiseptic. Antiseptics which dissolve necrotic tissue are more useful in bad infections than those which do not have this power. If instead of dissolving the necrotic tissue, the antiseptics coagulate the proteids an impermeable coating may form over the infected area and under this coating a favorable nidus arises for the growth of anaerobic bacteria. Salicylates and mercuric chlorides in strong solutions form impermeable coatings and are not so useful in deep wounds. Hypochlorites and chloramines are more useful, since they dissolve dead tissue, but because of their evanescent character they must be frequently renewed. The activity of dichloramine-T is not reduced, when it is in an oily solution. For cavities in which frequent renewal of the antiseptic is impractical, a paste of bismuth, iodoform, and paraffin (B.I.P.) introduced by Morison, has been extensively used by the British Army. In all cases of injury the wound should be cleaned as thoroughly as possible by surgical means (all the dead or devitalized tissue being cut away) before the application of the antiseptic.

10. The effectiveness of an antiseptic depends to a considerable degree upon the length of time the disinfecting medium remains in contact with the infected tissue, and the thoroughness with which it comes into contact with the bacteria. In case of evanescent action, as with the hypochlorites, etc., the antiseptic should be renewed frequently, as by the Carrel-Dakin method of application.

11. The rapidity and effectiveness of the action of an antiseptic depends largely upon the penetrability of the capsule of the bacteria to the antiseptic.

12. Some antiseptics in weak solution, and others only in concentrated solution, render the external layer of the protoplasm impermeable to disinfectants. For this reason, it is very difficult for an antiseptic to penetrate into the bacterial organism. After it does penetrate the organism, its activity is measured by the rapidity with which it is dissolved in the lipoids. The quicker and the greater volume of the penetration, and the greater the rapidity with which it is dissolved, the stronger is the antiseptic. Spores are more resistant and have a membrane of but slight permeability, so that they are very difficult to destroy by chemical agents. Depending upon the above factors bacteria may be classified into (1) those which most easily penetrate the external layer; (2) those which are easily dissolved in the lipoid contents of the bacteria.

The measure of the activity of a disinfecting substance, therefore, depends upon its solubility in water or other media, upon its ability to penetrate the external layer of bacteria, and upon its solubility in the lipoids of the bacteria.

13. The activity of a disinfectant may be enhanced by combining two or more antiseptics. Two disinfecting media of moderate strength will produce a greater disinfecting action than will either alone, in the strength of the two. One of these media may act as a carrier for the other, or it is probable that disinfectants have different points of attack on different bacteria. For this reason, we may use the elective action of different disinfectants against different bacteria.

14. For the maximum action of an antiseptic a proper degree of heat is necessary. "With metallic salts the mean velocity of disinfection increases 2 to 4 fold for a rise in temperature of 10 degrees, while with the phenol it is as high as eight fold, using the *B. paratyphosus* as the test organism in each case." (Dakin and Dunham.)

15. The activity of an antiseptic may vary, depending upon the type of the infecting organisms. It is quite likely that a particular antiseptic may not act equally well on all organisms. This, at least clinically, has been my experience, for I find that in streptococcic infections I have better results with iodine ½ per cent. in hypertonic 10 per cent., or saturated salt solution than with the hypochlorites or the chloramines.

The use of bactericides is not of itself devoid of danger. Should the death of a great number of bacteria suddenly occur, large quantities of toxin may be liberated and produce an extremely harmful reaction in the body. In this connection, it might be well to recall that toxins of bacteria are of two types: endotoxins and exotoxins. The endotoxins found in the bacteria are liberated only on the death of the bacteria, because the toxin is incorporated with the protoplasm and is liberated only when the bacteria are killed. The exotoxins produced in the bacteria rapidly pass out during the life of the micro-organism into the surrounding medium and cause very severe and early symptoms. Tetanus bacilli, in 24 to 48 hours produce an in-

tensely active toxin in the surrounding culture medium. It is not possible always to verify the exotoxin-producing power of a bacterium by cultural methods, because many bacteria produce their poison only in the animal body.

In using a bactericide, it might be of importance to know the kind of bacteria and the type of toxin which they contain. It would be very dangerous in an infection in which the causative bacteria contain an endotoxin to use an antiseptic in which the bacteria are suddenly killed and the endotoxin is quickly liberated in what might be an overwhelming dose. Toxins may be decomposed by the action of certain disinfecting groups, especially the chlorine group. In addition to bactericides, bacteria may also be destroyed by a reduction of their nourishment. For their vital processes bacteria need: (1) Water, (2) oxygen as a rule, (3) organic substances and salts, and (4) a proper temperature.

1. *Water.*—Before the food supply for the bacteria is available it must be in solution in the surrounding media, therefore a suitable degree of moisture is essential. Should this be lacking bacterial growth is greatly restricted. A practical application of this principle is made in the treatment of gangrene, where an attempt to keep it dry is made by the application of dry heat in the form of the hot air blast, the hot water bottle, or the electric light bath. If the gangrene is moist, an effort is made to keep the paste dry by radiant heat from electric light bulbs by the application of dusting powders, etc. The removal of water from the tissues is also affected by glycerin and absolute alcohol.

2. *Oxygen.*—For their growth most bacteria need oxygen in some form, carbon dioxide, and nitrogen which is absorbed in the form of nitrates. Depending on whether oxygen as found in the air is or is not necessary, bacteria may be divided into (A) aerobic, which are again subdivided into obligate and facultative. (The obligate absolutely must have free oxygen, while the facultative can get along without it.) (B) The anaerobic which thrive best where free oxygen is not present. These again may be divided into obligate which will grow only when there is absolutely no oxygen, and the facultative which will grow in the presence of a small amount of oxygen. The anaerobic separate the oxygen from the nutritive media, the aerobic from the air. The presence of aerobic bacteria in combination with the anaerobic will permit the latter to grow. A wound infected with aerobic bacteria may be rendered sterile or nearly so by restriction of the oxygen supply. This restriction of oxygen may be brought about by some non-pathogenic organism which is hardy and requires large quantities of oxygen for its support, for instance, yeast cells. They produce carbon dioxide which restricts the content of oxygen in the wound and at the same time the deeper layer of *Sarcinæ* removes the oxygen from the tissues, thus causing death to the bacteria. To restrict the absorption of gases from the surface of the wound and thus inhibit the growth of aerobic bacteria, an impermeable layer of some substance, such as charcoal which has the power of quick absorption of gases may be used. The development of anaerobic bacteria may be inhibited by suffusion of the tissues with oxygen under low pressure.

3. *Organic Compounds and Salts.*—Nitrogen is supplied in the form of organic compounds as broken down albumin molecules, serum or muscle waste products, etc. Salts, such as sodium or potassium, magnesium or calcium, phosphorus, etc., are necessary. These enter the bacteria by diffusion, as salts from the surrounding media. Therefore, the nutrition of the bacteria may be retarded by changing the constituents of the surrounding media. The presence of an excess of salts of these elements may act more disadvantageously than the presence of too little. For instance, more than 0.5 per cent. to 0.8 per cent. of salt in the surrounding media restricts the growth and spores are formed. Changing the reaction of the surrounding media may also affect the growth of bacteria. Some bacteria require, or flourish best in an acid media, while for others an alkaline media is the best. Therefore, the exhibition of an antiseptic-carrying-medium which of itself is inimical to bacterial growth will enhance the activity of a suitable antiseptic. Everything which causes a restriction of the diffusion rate of needed salts into the bacteria has a deleterious action on them, for instance: Neutral salts decrease the diffusion power of certain substances into cells. Acids retard the diffusion of substances into cells. Low temperature hinders the diffusion power of cells. (Cf. Ross, 2101.) Urea hinders the diffusion of substances into cells. Alkalies and alkaline salts cause a marked increase in the diffusion of other substances into living cells. Excess of sodium carbonate may act as neutral salts and so delay diffusion. (Cf. Ross 7075, and 101.) Therefore, the solution of an antiseptic in an alkaline medium would enhance the diffusion power of the antiseptic. However, since the diffusion power would be increased in the animal cells the same as in bacteria, such a combination might not be an advantage, unless one could find a substance with a selective action, that is, one which prevents diffusion into animal cells, but favors it into bacteria which are vegetable cells, with a cellulose capsule. We would then be closely approaching the realm of specific antiseptico.

4. *Proper Degree of Temperature.*—Bacteria grow best at a certain temperature. Elevation or lowering of this certain temperature mean has a deleterious influence on bacterial growth. Cold has a marked retarding influence. Heat to be equally efficacious, must be of such an intensity that if it destroys the bacteria, it must at the same time injure the tissue cells.

Another method of destroying bacteria is by the action of one variety of bacteria on another. This is called antibiosis and is the direct opposite of symbiosis. In this method, use is made of the destructive action of the ferments of one variety of bacteria on another variety, as is exemplified by the action of *B. acidophilus* on *B. coli.* Symbiosis is seen in the cooperative action of the influenza bacilli with either the pneumococcus or the *Staphylococcus aureus.* Some ferment producing bacteria can cause fermentation in hemicellulose and produce (1) acetic acid, (2) formic acid, (3) succinic acid, (4) alcohol. These substances may act as antiseptics.

Bacteria contain a gelatinous carbohydrate similar to hemicellulose. Therefore, the possibilities

of using the above ferment-producing bacteria as active antipyogenic bacterial agents is appealing.

Other bacteria act by chemical precipitating action on the protoplasm of adjacent cells; for instance, the *Beggiatoa* and the *Thiothrix* have the power of precipitating sulphur in the form of small amorphous particles in the protoplasm. This sulphur may be dissolved in the wound juices and act as an antiseptic.

One other antiseptic activity of bacteria may be the production of poisons destructive to one variety of bacteria by another. (So far, I have not been able to find record of such a variety.) The *Bacillus prodigiosus* may have such action. I have no doubt that ultimately bacteria with this attribute will be discovered.

The effect of light upon bacterial growth must not be forgotten. Bright sunlight has a markedly injurious action upon bacteria. The blue rays act most powerfully, the violet and ultraviolet with less intensity (Marshall). Radium and *x*-rays in proper dosage will destroy bacterial growths. Electricity has some bactericidal power, but is not applicable to the treatment of bacterial wound infection.

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WHAT THE SCHOOLS MAY ACCOMPLISH IN SOCIAL ADAPTATIONS.*

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NEW YORK.

WE make progress slowly in education, due to the fact that in many instances we start at the wrong end. The educators alone are not at fault. The medical profession, for instance, has only begun within the past few decades to look to preventive medicine. Neuropsychiatrists considered the end-processes of defective mentation, and only in the last score of years have they applied mental hygiene to so-called normal persons in everyday life.

It has become increasingly obvious that antedating the formulations of distinct syndromes and symptoms known as disease, there are many evidences of maladjustments in the early physical and mental life of the individual which if taken in hand at the time of their development are much more modifiable than later. Thus many nervous disorders can be retarded or prevented. The facts brought out by these more intensive investigations show that we must consider the individual as a whole rather than piecemeal. We have grown to realize that the presence of defective eyesight, enlarged tonsils, etc., is but a part of the defective equipment and removal of these physical defects only helps the feebleminded individual to handle better his larger problem of life. In other words, an individual may be so feebleminded in all his life reactions that straightening out one or two of his physical defects will not radically clear up the situation. The other point is that precise methods of intellectual gradements fail to clarify the behavioristic faults per se. We will take up this latter point again. As in forestry culture where the big trees are cut down first, we get at the more obvious and immediately pressing issues before these other problems are taken up. We all know that an intensive concern to detect and remove imbeciles from the public schools does not cure idiocy and feeblemindedness, but it has made patent the prime necessity of considering the moron, the dull normal, and the socially unstable pupil, and now we are much concerned with the so-called normals with antisocial tendencies which are for the most part benign.

For a long time it has been popularly held that all the feebleminded are potential criminals. The essential intellectual defect disclosed is supposed in some manner to portend a weakness in their social adaptability. It is true that perhaps a larger number of social delinquents is recruited from those suffering from intellectual defect, but this is offset by the fact that the converse is not true. What is ordinarily known as character is not at all related to degree of intellectual endowment. This conclusion is now patent in the mental defective, in the moron, and in the dull normal group. It is likewise true for the psychopathic group as a whole, including the neurotic, the socially unstable, and the insane. Recent studies have shown that the socially defective youth is an individual of an entirely different sort. He is defective in the social instincts that underlie character. I will illustrate by an example:

My case is that of a boy of seventeen who had been stealing at the school in which he was preparing for college. His home life was apparently normal. He was a vigorous, overactive boy. In an outline of his personality we found that although possessed of a lively temper he could take disciplinary punishment fairly well. He had a keen sense of justice but seemed unable to combine courage and will to put into practice his ideals, which were rather strict for one of his years. He was very uneven in intellectual development, and for several years lacked power of concentration, and was easily diverted from his tasks. He had the play-impulse of one more youthful than his years, and from the age of twelve seemed unable or unwilling to repress this impulse for a more adult mental development. He was a born leader, and a bit toppy and egotistical in his boy set. He was very sociable, kindhearted, and generous. Both parents being deeply concerned in the formal religious aspects of their neighborhood life, the son embraced the same attitude and became a bit priggish in consequence. However, it took no deep hold of his moral nature and he did not seem to rely upon religious practices to hold his pleasure-impulse in check. At puberty his physical restlessness increased; he had a short period of sleep walking and frequently talked in his sleep of his search and pursuit of various pleasures.

When this boy first entered preparatory school he was struck with the extreme levity and rather insincere attitude many of the boys took toward the discipline and regulations of the school. This was not the general rule, but there was a sufficient number who indulged in profanity and made for a general laxity in moral atmosphere to materially lower his own standards. This not only concerned strictly moral issues but attitudes toward study, cribbing, cheating, etc. A number of the boys spent money lavishly and often through deception obtained money in excess of their actual needs. The boys were also allowed to visit one of the large stores and see the display of goods, and our patient found it difficult to curb his desire to purchase things which his allowance would not afford. This atmosphere was entirely opposite to what he had been accustomed at home; coupled with this fact he felt the need for more money to gain an equal footing with the other boys, besides satisfying his own personal wants, and he felt in a state of being chronically hard up. For instance, he coveted a new drill coat, which many of the boys also needed but the minority

*Read before the American School Hygiene Association, New York, November 16, 1921.

did without. He had not sufficient money, but nevertheless purchased the coat and borrowed the money from his father, whom he believed would stop part of his allowance in order to meet the expense; instead, he was required to do additional work during vacation to earn money to pay for it, cutting wood, attending to the furnace, etc. He considered this a hardship, and it caused him much annoyance. He failed to do his work promptly, to get home on time, and by various means avoided the painfulness of working. He said very frankly, "I am lazy and never wanted to work. I don't know anybody who does want to work."

In February two years ago an episode occurred in which he took money from his roommate, whom he liked, and as he states, it was an impulsive act. About this time he had been having an ineffectual struggle to repress his sexual life. This, combined with the chronic shortness of his funds, created a state of discontent and irritability. As a result of taking the money he felt miserable, his head ached, he was remorseful, humiliated at the exposure, etc. In the following May and June he successfully repressed his sexual desires; but they reappeared on going back to school in the fall. However, with much moral effort and special physical precautions, taking cold baths, exercising, etc., he was able to check his impulses. Still the need of funds was as keen as ever. He then roomed with a boy who had an abundance of money and who had no need for the extra clothing which our patient took. He then experienced the same disgust and humiliation after this act as when he had taken the money or when he had masturbated. In every instance it was the desire to get the desired object rather than money as such which really concerned him. At the time of this episode there was considerable sexual desire but no overt practices. Since that time he has been capable of suppressing his sexual desires entirely and has taken no money or property, and has no desire to do so. There is a retardation in the development of the emotional life and its inhibition, and as a result of an attempt to repress a too insistent sexual demand and the various inhibitions against it being ineffectual, it comes up by way of an impulse that is partially acceptable to consciousness in taking the things which he would buy if he had more money. At first he stole to spend money on foods and drinks.

Going more into details, we find that the first thing which strikes one about this boy is that he has been backward in the development of his emotional life, his feelings, ideas, and general attitude toward behavior and conduct. A reconstruction was necessary when he went to the preparatory school and had to make new adaptations. At school he felt he was in an atmosphere which no longer held him up to the innate idealism of the home, and as he put it, "It is harder when you have boys around you doing the things you never did."

It came out very strongly that he was violent in his hatred toward the school. He was attached to some of the boys, but when it came to the school discipline, he hated the "policemen", the spy system, the rules and regulations, and thought the scheme of things which made them necessary was "rotten". If he had obeyed the regulations of the home at an earlier period and made a satisfactory adjustment, he would have taken the severer discipline at school a little hard for awhile, then would have gradually adjusted to it. Each phase of development had not been properly met, and he was thus re-inflicted at a later period with mental indigestion,—of episodes, attitudes, and adjustments not properly met in the home, in the boy group, etc. He was chronically hard up, and it was very difficult for him to suppress his pleasure-impulses, his desire for sweets, dress, etc. These subinhibited youths suffer more, they cannot get these intense desires out of their minds or sidetrack them. This boy suffered a great deal from suppressed desire, especially when other boys spent money lavishly, often obtaining more than they actually needed. Seeing goods displayed increased this boy's desires and gave him moral cramps when he was obliged to go without.

In this boy the main moral fault was due to his bad handling of his sexual life. The situations were relatively benign. A few analytical talks and an arraignment of cause and effect were sufficient to correct both vicious attitudes. The boy is now entering college and is accomplishing his education with an excellent record.

By and large it makes little difference to society whether its individual members know more or less of the usual ingredients of a high school education. It is highly important, however, that the individual shall conduct himself with proper decorum and obey the ordinary customs and laws in common usage. In order that he may do this it is necessary that every individual shall have the training in the home or school of the socially adaptive instincts. It naturally begins in the proper instillation at home of what may be designated as nursery ethics, continued in the school training by both teacher and companions in learning to be a socially adaptive being in the group. Usually this training is supposed to be obtained by the youth in the course of natural observation and association with others, but is this hit-or-miss method sufficient? Boarding schools and colleges say it is not, and they wisely make considerable effort to give this training under the various terms, conduct, personal culture, morale, etc. Many times in the so-called finishing schools the chief duty of the school is to train the pupil in this field of social and adaptive education, ofttimes carried to an exaggerated degree. However, the principle is thoroughly sound, worthy of being rescued from the obliquy into which it has fallen, especially if the idea is genuinely sincere.

We are then forced to consider the kind and manner of training and the type of teacher qualified to give it. Should those engaged in purely intellectual teaching be called upon to do this quite different sort of training? Again, should not instructors in this field have a good deal more equipment than merely a natural aptitude and inherent sense of world culture? Can we afford to allow the public day school to go unequipped with a proper personnel for teaching social adaptations which the private school and college have so long given their pupils? We know in the future life work of these youths this training counts much toward success. The advantage is not to be reckoned in mere social terms, but is of great economic importance as well. The principle too intimately concerns the general welfare of all society to be denied proper concern. Those engaged in the broader applications of preventive medicine, that branch known as mental hygiene, recognize at once the importance of a social training for youths of all ages. It is in this province of education that the proper teachers not only help the easily guided youth to a better adaptation to life, but those who early show nonsocial instincts can be easily detected and given proper corrective training, or they can be referred to many of the mental clinics now being established in this State, whose main concern is to handle and direct the

benign cases of social maladaptations to the proper agencies. If the simple advices and directions which are given in these mental clinics are not efficacious, then more intensive correctional measures may follow. Thus a proper union of teacher and psychiatrist would be possible toward preventing a host of nervous invalidism in later life. I am informed that this sort of morals officer of the school system has been much further advanced in Europe than here. The French schools in particular make the simple ethical principles of conduct in all phases of life a part of the school curriculum. In brief, then, why should not our public schools incorporate more fully social adaptation as an integral part of the educational system? Perhaps the Truancy Department could be encouraged to do not only moral policing but psychologic social service of a more constructive sort than at present. If this truancy function of schools has already acquired too bad a name and feeling, why not attach this expanded function of social training into the regular intramural school curriculum? If the present teaching force is to be employed at this work, they need a more specific training in applied dynamic psychology. It would, of course, be better if this work were left to specially trained workers in this field and incorporated as a part of the regular teaching personnel of the school system.

2 East Sixty-fifth Street.

INDICATIONS AND CONTRAINDICATIONS FOR TONSILLECTOMY.*

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It is a surprising fact that most men when questioned as to how long the tonsil operation has been performed, will answer, about fifty years. The fact of the matter is that the tonsil operation has probably been in use for several thousand years. Celsus, in A.D. 10, speaks of this operation with great familiarity; he says: "Tonsils which remain indurated after inflammation, should be loosened by working the finger round them, and then torn out; when this is not possible, they should be seized by a hook, and excised with a scalpel." Aetus speaks more cautiously of removing the tonsils, in A.D. 490. Paul of Ægina in A.D. 750, and Albucasis in A.D. 1120, speak of the operation, but have great respect and dread of hemorrhages. After this the operation fell into disuse and Ambroise Paré in 1509 advises tracheotomy. His pupil Guillemeau did not resort to tracheotomy unless the mouth could not be opened. In 1637, Servini, during an epidemic, the most important symptoms of which was great swelling of the tonsils, removed numbers of them by caustics when pedunculated, and by a knife when sessile. Dionus in 1672, opposed the removal of the tonsils saying, that they are of physiological importance. After 1740, operations came again in vogue by means of the tenaculum and bistoury. Meseati and Wiseman have the credit of reviving the operation. They first used a ligature round the tonsils and then cut off the projecting portion.

*Read at a meeting of the Southeastern Branch of the Philadelphia County Medical Society.

Medicine, from its incipiency in the minds of our savage forefathers until this present generation of scientific practitioners, has been and is continually undergoing changes.

Until a very short time ago, the doctors, for the treatment of various bodily ailments, decreed that fresh air, sunshine, and water, were dangerous elements, and should be kept from the sick. The practitioners of the last few generations, however, find these elements an absolute necessity in the cure of disease, and so instruct the public. The general public, being the first ones to resist any new ideas, and the last to take them up, have and are resisting the change of front of their family physicians. Having been trained to fear sunshine, air, and water, when treating disease, they (especially the elders amongst them) resist the complete change. Many times a physician cannot advocate his honest opinion and remedies, just because he fears the opinion of his patients, and knows if he insist, a loss in income and reputation would ensue. This is preeminently seen when treating such acute infectious diseases as measles, erysipelas, etc. Fresh air is excluded, the room temperature is kept far above that of normal, and water must not touch the body of the patient.

Some time ago, it was proven beyond a shadow of a doubt that the tonsils were in many cases the cause of local and general bodily ailments, and their removal, at first partial (a tonsillotomy) and then later complete, *i.e.* capsule and tonsil (a tonsillectomy) was advocated. The cry, wolf, of the physicians whenever a set of tonsils was seen, was after some public objections, taken up by the populace, so that the time has practically arrived, when to tell a patient that his child has enlarged tonsils, but the necessity of removal is not an absolute one, is to draw down public censure. To-day the public in most cases, demand the removal of the tonsils.

Dr. R. sent a child to my office for an examination of the tonsils. On examination I could not find any indication for their removal, and suggested to the mother to wait at present, and if any trouble developed pointing to the tonsils, to return and I would remove them then. I never saw this patient again, but found out later that she went elsewhere and had the operation performed. I was informed by her family physician that she believed I had found in these particular tonsils of her child something to make me afraid of operating, and I had therefore hedged about the question.

Recently my chief, Dr. G. B. Wood, had a similar experience. A druggist of this town, wanted to have his child's tonsils removed, but on examination, I did not see the absolute necessity for the operation. He wanted the opinion of another man, and I referred him to Dr. Wood, who also did not find the necessity of an operation. The child was taken to another specialist, and had a tonsillectomy performed.

Last year at a meeting of the Mt. Sinai Clinical Society, I made the statement that there were too many tonsil and submucous operations performed.

My friend, Dr. Moses Behrend, ably seconded me in this statement. I might add here that the probabilities are, that there are too many operations performed in general.

Last year after reading my paper on a similar subject before the Brooklyn Pediatric Society, where I advocated that a little more thought was necessary before advising tonsillectomies, a well-known physician arose and, raising his hands, said, "Thank God, no one has stolen my children's tonsils." Unquestionably the expression of a most extreme conservative. A physician of this city arose at a meeting and stated: "To advise against the removal of tonsils ought to be regarded as a criminal offense, punishable by law." The most extreme radical view I have ever heard.

Because a child's tonsils may even protrude a little in front of the anterior pillars, is no reason for their removal, although it seems to be the essential indication for our school doctors. Many parents whose children had been referred to the dispensary (many of whom can well pay for services, *school doctors please note*), when asked what ails the child, tell me "he has tonsils." When asked whether or not the tonsils bother the child they answer, "the tonsils don't bother the child, but they bother the school doctor." A typical conversation in my office or dispensary is as follows:

"What was your purpose in bringing the child here?"

"Oh, he has tonsils."

"What about the tonsils, are they troubling him, has he any attacks of sore-throat, ear trouble, does he sleep with his mouth open, has he rheumatism, heart-trouble, etc.?"

"Oh, no, he has tonsils and I want them out."

"But if they don't bother him, why run operative chances, be it ever so small?"

The answer is a peculiar stare, whose meaning I have learned, and the outcome of the matter is that the operation is performed elsewhere.

Physicians, as well as the public cannot be blamed for this present attitude. The fact is, that special text-books on the subject are very indefinite and vague, enumerating as indications all well-known diseases from brain-fever to bunions. We must not lose sight of the fact that it may be just as bad to err on the conservative side as on the radical side. Also, that the last word on this question has not yet been said. The pendulum is still swinging in the direction of more and more tonsillectomies, but like all other movements, it will probably swing the other way some day, and that, sooner than one might expect.

When considering the question of removing tonsils, and knowing the enormous amount of benefit the human race has gotten from it, we must not lose sight of the fact that patients subject themselves to a great many possible complications and fatalities. In the last three years, I have seen three deaths from such operations. The first happened immediately after the injection of the local anesthetic. In the second, the patient stopped breathing while being anesthetized, and all efforts at resuscitation were of no avail. (All this occurred prior to the operation.) In the third case, the child left the table following the operation in almost perfect shape, no bleeding, and still, five hours later, it expired. I feel very thankful that none of these cases were mine; however, no one is free from such a possibility. Besides fatalities, which, of course, are rare, complications, such as pneumonia, otitis, local abscesses, and lung abscesses, are met now and then by every operator. Each case is a law unto itself, and should be considered as if occurring in our own families, meeting the demand of the case in question at all times.

Let me also call attention to the fact that in a large number of cases it is impossible to state definitely, after looking at and feeling the tonsils, whether they are normal or diseased. Tonsils which have appeared to be ragged, enlarged, with adherent congested pillars have been found on microscopic examination to be normal, and some which appeared normal have been found full of pus pockets. You cannot say in many instances, on looking say in many instances, on looking at a pair of at a pair of tonsils, that they must come out or stay in; it is the *history of the case* that is most important.

To-night I want to attempt to give a sane, not too radical nor too conservative view on the subject. An absolute demarcation line cannot be drawn, each case must be studied from its own angle.

For general purposes of discussion, I have divided the indication of tonsillectomy under two headings: (1) The absolute indications, in which case I insist on the removal of the tonsils. (2) The questionable indications, where one can wait, watching the patient, before deciding one way or the other.

Absolute Indications.—1. Recurrent attacks of acute tonsillitis, whether of the suppurative or simple variety, call for a tonsillectomy.

2. When an acute attack of tonsillitis (even though it be the first) is followed by such complications as rheumatism or heart trouble the tonsils should be removed.

3. Tonsils that are so large as to cause any difficulty in breathing or swallowing call for a tonsillectomy.

4. All cases of acute suppurative otitis media (otorrhea), which have lasted more than six weeks call for a removal of the adenoids and tonsils.

5. Repeated attacks of pain in the ears of children who have a normal drum-head, and no near-by local conditions is found to explain the pain, call for the removal of the adenoids and tonsils.

6. Recurrent attacks of acute anterior cervical adenitis, especially when the "tonsillar gland" is involved, point to the tonsils as the origin of the infection and call for their removal.

7. Tonsils, which on pressure extrude cheesy matter or pus, complicated by symptoms of toxic absorption or a foul odor of the patient's breath, calls for their removal.

8. If the patient has had one attack of peritonsillar abscess, removal of the tonsils will prevent the recurrence of this condition.

9. Diphtheria carriers should have their tonsils removed. (Negative cultures are usually returned in two weeks after operation.)

Potential Indications.—1. All tonsils, being possible sources of trouble, should be looked upon with suspicion at all times, especially those showing some enlargement, irregularity, congestion, adherent pillars, or extraneous substances obtainable by extrac-

tion or pressure. When such tonsils are present in patients suffering with rheumatism, chorea, arthritis, etc., and when all other sources of infection have first been investigated and treated without avail, they should be looked upon suspiciously, and if no contraindication exists, they should be removed.

2. Cases in children of occasional nasal hemorrhage, without any local area found to explain this, or cases of chronic nasal discharge, should have their adenoids and tonsils investigated with the idea of removal. I purposely put the adenoids first, because they are probably at the bottom of these symptoms, and when removing the adenoids, it is well worth while to do a tonsillectomy at the same time.

Contraindications.—1. *Age*: Tonsils should not be removed before the age of two, unless some special indication exists. Tonsils should not be removed from people who show a marked arteriosclerosis, or in the old. The danger often overbalances the possible good that might result from such an operation.

2. Patients having fever or albumin in the urine, should wait until these are cleared up before being operated upon if possible.

3. During an epidemic I think it unwise to remove tonsils.

4. When vascular anomalies are seen or felt in the tonsillar region, pointing to large blood vessels, being in direct relationship with the tonsils, the removal of the latter is fraught with great danger.

5. Hemophiliacs, or those known to bleed very much after the slightest cut, are endangered by the operation of tonsillectomy. I always ask my patient before operating as to their bleeding propensities, and if possible have the blood coagulability taken.

6. Operating during an attack of acute tonsillitis or of peritonsillar abscess, I believe to be unwise. These patients take ether poorly and injection of a local anesthetic is rather dangerous, to say the least (pushing infection, as it may, into surrounding tissue and opening up nature's protective wall).

7. All conditions wherein the giving of a general or local anesthetic is dangerous, are to be classed as contraindications to tonsillectomy. The key to this part of the topic lies in the question, "Is the danger run justified by the possible benefits to be derived?"

8. I always try to avoid a tonsillectomy in cases of atrophic rhinitis.

9. Syphilitics should not have a tonsillectomy performed unless in the most extreme urgency.

10. Tonsillectomy in the presence of badly diseased teeth, or of an acute infection in or about the mouth, is to be avoided, when possible.

In conclusion permit me to again call to your attention the fact that it is often a very difficult matter to decide whether to remove the tonsils or to leave them alone. No rule of thumb can be laid down. Each case requires your own special painstaking, conscientious thought. The possible dangers and the benefits that the patient may derive, must all be carefully considered; and if this paper can bring the idea to us to be less hasty, and more careful before advising tonsillectomies, it will have served a worthy purpose. Last, but not least, let me say that in the operations that I have performed, ill results, if any, occurred in the three weeks following the operation. If none occurred during that time, the patient ever afterward showed no ill effects, and in a vast number of cases an improvement in their general health was noticed.

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"PERICARDITIC PSEUDOPNEUMONIA" IN CHILDREN.*

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During the past few years, our attention has been called to the fact that, associated with pericarditis with effusion, there are found definite abnormal physical signs indicating some sort of a pathological condition at the left scapular angle. Inasmuch as there has been but little written on this subject, it seems a very appropriate time to discuss the condition, and perhaps to arrive at a common understanding concerning the signs of apparent consolidation at the left scapular angle, associated with pericarditis with effusion.

A review of the literature for years back discloses but little information concerning this rather puzzling subject. Textbooks on physical diagnosis, such as Norris and Landis,[1] French,[2] and Cabot,[3] only mention that signs of apparent consolidation at the left scapular angle are met with in pericarditis with effusion. According to Musser,[4] there is increased pulmonary resonance at the left scapular angle, with increased vocal fremitus, and bronchial or bronchovesicular breathing. These signs are present when the patient is sitting up, but disappear on his bending forward.

According to Roberts,[5] when considerable pericardial effusion is present, the left side of the chest may give rise to a definite group of signs such as dullness, increased fremitus, bronchial or tubular breathing, bronchophony, or egophony.

In these cases Robey[6] calls our attention to a small area of dullness at the left scapular angle.

Christian[7] is the only author to date who has enlightened us on this subject to any extent. He reports that in his series of 53 cases, all of which were in adults, observed at the Peter Bent Brigham Hospital, 39, or 73.5 per cent., showed abnormal physical signs indicating some sort of a pathological condition in the left lower chest. Christian also mentions the very interesting fact which I have also observed, namely, that nearly all of the cases that showed the pulmonary signs had acute articular rheumatism on admission, or had an attack a very short time before admission. In our series of cases it will be seen that all gave a distinct history of rheumatism occurring a few weeks before admission, but there was no evidence of arthritis on admission. This would seem to indicate that the damage was done to the heart at or soon after the onset of the arthritis. Pericarditis is often overlooked for several days because it is usually entirely painless, and on auscultation the to-and-fro friction sound may resemble a valvular murmur.

According to Riesman,[8] a curious feature in pericarditis, and one that may cause error in diagnosis, is the presence in many cases of the signs of pneu-

*From The A. Jacobi Department for Children, Lenox Hill Hospital, New York City.

monic consolidation in the left chest. Distinct dullness on percussion, bronchial breathing and bronchophony suggest the presence of pneumonia, and Riesman believes that the deceptive signs are produced through compression of the left lung by the heart. The production of this condition he calls "Pericarditic Pseudopneumonia."

It appears that the above authors, with the exception of Christian and Riesman, lay stress on the fact that the pulmonic signs are due to large amounts of fluid in the pericardium, but I have found that the pulmonic signs are present when only a small amount of fluid is present with an enlarged heart, and is not dependent on large amounts of fluid in the pericardium, but is present in cases of acute fibrinous pericarditis as well.

The physical signs in these cases vary to some extent. In some the dullness is distinct and extends from the spine of the scapula to the left base, in others the dullness is limited to a very small area at the left scapular angle, while in others the dullness extends to the axillary line. Over the corresponding dull area there is heard distinct bronchial breathing of varying intensity, and bronchophony or egophony. In none of our cases were rales elicited except in Case III, in which the rales were scattered throughout the right side posteriorly but with absence of other signs of consolidation on the right side.

The majority of our cases of pericarditis on admission to the hospital, presented rather definite signs of apparent pneumonia, such as dyspnea, dilatation of the alæ nasi, fever ranging from 102° to 104° F., and a very rapid pulse. All gave a history of coughing profusely a few days before admission to the hospital. Two of them had been expectorating blood tinged sputum.

A common mistake in these cases is to suppose that a lobar pneumonia is present. Experience has shown that these signs are due to pressure exerted on the lung by the heart or by a pericardial effusion and not to an exudate in the lung.

During the past few months it has been possible to observe a number of children with pericarditis, and it has been found that nearly all of these cases showed definite signs of apparent consolidation at the left scapular angle.

CASE I.—B. S., female, age 4 years. Three weeks previous to admission to the hospital child had a rather severe attack of rheumatism with involvement of ankles, wrists, elbows, and shoulder joints. Since the onset of the rheumatism she had been running a temperature ranging from 101° to 103° F. Two days prior to her admission she began coughing profusely. There was present slight dyspnea which was exaggerated on exertion. There was no pain over the precordium. The patient was perfectly well prior to onset three weeks ago, except for frequent attacks of tonsillitis. On admission to the hospital the temperature was 102° F., pulse 162, respiration 36.

Physical examination revealed a poorly nourished child who appeared to be acutely ill but apparently suffering no pain. Color cyanotic, especially of lips and ears, the respirations were markedly increased and labored, and dilatation of the alae nasi was pronounced. A pericardial friction sound was audible over the lower end of the sternum, accompanying both systolic and diastolic phases of the heart not intensified by bending forward or in the erect position. Cardiac dullness was increased downward and to the left and slightly to the right of the midsternal line. The left border of the heart measured 12 cm. to the left of the midsternal line; right border 2 cm. to the right of the midsternal line. Total transverse diameter 14 cm. At the left scapular angle there were signs of apparent consolidation such as bronchial breathing, bronchophony or egophony, and a distinct dullness over the corresponding area. No râles were elicited. Bamberger's sign was not present.

A roentgen ray examination revealed evidences of pericarditis with effusion, but none of consolidation at the left scapular angle.

CASE II.—F. C., female, age 8 years. Six weeks prior to admission she gave a history of a severe attack of rheumatism with involvement of right ankle and knee joints; both joints were swollen and red. This condition subsided in fourteen days. Seven days previous to admission she complained of pain over the precordium and dyspnea on exertion. Two days ago she began coughing but at no time was any blood-tinged sputum noticed. On admission the temperature was 103.2° F., pulse 132, respiration 32.

Physical examination revealed a child apparently acutely ill, with cyanosis of lips and ears. There was marked dyspnea with dilatation of the alae nasi. A pericardial friction rub was audible over the base of the heart which disappeared on resuming the erect position. Cardiac dullness was markedly increased. The left border measured 14 cm. to the left of the median line; the right border measured 4 cm. to the right of the median line. Total transverse, 18 cm.

Posteriorly at the left scapular angle there was heard distinct bronchial breathing with bronchophony, and there was dullness over the corresponding area. No râles were elicited.

Roentgen Ray Report.—The shape of the cardiac shadow would indicate a pericardial effusion. There is no evidence of a pneumonia at the left base.

CASE III.—E. B., female, age 10 years. Gave a definite history of rheumatism four weeks prior to admission. Ten days ago the child contracted a severe cold and since then has been coughing continually. The mother has noticed blood-tinged sputum at times. There was marked dyspnea on exertion, but the child complained of no pain over the precordium. On admission to the hospital the temperature was 102.8° F., pulse 130, respiration 48.

On physical examination there was heard over the precordial area a distinct pericardial friction rub, with the physical signs of mitral regurgitation and stenosis. Cardiac dullness was increased downward and to the left and right of the midsternal line. The left border measured 13 cm. to the left of the midsternal line; the right border 5 cm. to the right of the midsternal line. Total transverse, 18 cm.

Posteriorly at the left scapular angle and extending down to the left base, there was bronchial breathing with bronchophony. Dullness was pronounced over the corresponding area and extending to the axillary line. Voice and breath sounds were somewhat increased over this area. No râles were elicited over the left side of the chest, but there were a few crepitant râles heard over the entire right side posteriorly, but with no other signs of consolidation. Bamberger's sign was not present.

Roentgen Ray Examination.—There is a shadow extending from the first rib to the base of the heart on the left side and is very suggestive of a left-sided pericardial effusion. The whole of the right chest posteriorly shows congestive changes.

CASE IV.—J. B., male, age 10 years. Four months prior to admission to the hospital the child began to complain of pain over the precordial region which has persisted at intervals since the onset. Three days after the onset the child gave a history of rheumatism with involvement of both knees and ankle joints. This condition cleared up under treatment, three weeks later. Seven days prior to admission to the hospital the child began coughing but no blood-tinged sputum was noticed at any time. There was dyspnea on the least exertion. The temperature on admission was 101.2° F., pulse 140, respiration 30.

Physical examination revealed a child acutely ill, with labored respirations, marked cyanosis, and dilatation of the alae nasi. There was distinct bulging over the precordium. Over the lower end of the sternum there was heard a distinct pericardial friction sound accompanying both systolic and diastolic phases of the

heart, not intensified by bending forward or in the erect position. The left border of the heart measured 13 cm. to the left of the midsternal line; the right border measured 4 cm. to the right of the midsternal line. Total transverse, 17 cm. At the left scapular angle there was heard bronchial breathing with bronchophony. Over the corresponding area there was slight impairment of resonance.

The Roentgen ray report reveals evidence of pericarditis with effusion.

In explanation of this peculiar phenomenon, it is evident that the great frequency with which these signs of apparent consolidation occur with pericarditis indicates that there is some definite relationship with the heart.

There have been several theories advanced as to the cause of these signs:

1. A distended pericardial sac presses on the lung producing a mechanical atelectasis.

2. An inflammatory process extends from the pericardium to the pleura or lung causing changes that are responsible for the pulmonic signs.

3. Pressure is exerted on the lung by a dilated heart or a pleural effusion.

The area of solidification at the left scapular angle is in all probability due to pressure upon the lung either by a pericardial effusion, a pleural effusion, or a greatly dilated heart. The latter possibility is very rarely mentioned in textbooks.

In none of our cases was there evidence of pleural effusion.

Conclusions.—1. The signs of apparent consolidation at the left scapular angle are, in all probability, due to the compression of the pulmonary tissue either by the heart or by the pericardium, or by both.

2. The frequency of these signs and their location at the left scapular angle, indicates that there is some casual relationship to the acute pericarditis.

3. These pulmonary signs seem to have little influence on the course of the disease, as the signs at the left scapular angle disappear with the improvement of the pericarditis.

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Digitalis in Tuberculosis.—Focke quotes literature 100 years old of English origin in which the statement is found that foxglove in small dosage is of value in the first stage of consumption and may result in recovery. It is of hardly any use in the second stage, but in the third exhibits some symptomatic value. He suggests that the drug be tried out in our sanatoria.—*Wiener klinische Wochenschrift.*

RESOLUTION IN PULMONARY TUBERCULOSIS.

By OWEN PAGET, M.D.,
PERTH, WEST AUSTRALIA.

MANKIND is generally reluctant to hurry along the paths of progress. When I was a student in London the orthodox treatment for ovaritis and salpingitis was to paint a circle of tincture of iodine on the abdomen over the ovarian region. Our teachers for the most part, better casuists than classicals, sought to infuse our minds with the differences between "para" and "peri" metritis. An abdominal section was a sacrificial ritual.

My outlook was, however, influenced by a visit to Bordeaux, where the operating of a gynecological surgeon, who removed ovaries like picking plums off a tree, charmed me by its celerity, even though one wondered sometimes as to its necessity.

Presenting myself shortly afterwards for examination, I enthusiastically described the superiority of French to English methods. Unfortunately one of the examiners was one of my teachers, and I passed my examination by the merest margin and received a severe rebuke.

There is no question but that the time is close at hand, when pulmonary tuberculosis will be easily cured by the practitioner in a few days to six weeks. Three factors only dominate the prevention and cure of this disease—

(1) The circulation of the inspiratory current of air in the regions of the nose, superior to the level of the free edge of the middle turbinate bone.

(2) An appreciation of the physiological capacity of the epithelial cells in these regions to produce antibodies, potent enough to prevent and destroy the growth of tubercle bacilli in other parts of the body.

(3) The discarding of academic pedantry, which refuses to admit the presence of tuberculosis, until bacilli are discovered in the laboratory. For this must be substituted the dictum, that, lacking positive evidence of other disease, ninety per cent. of the diseases of the nose, tonsils, pharynx, and lungs are tuberculous, and should be speedily treated accordingly.

Future investigations in the morbid anatomy and pathology of pulmonary tuberculosis will be practically confined to such questions as: (*a*) The penetration and exfoliation of protective epithelium. (*b*) The not infrequent occurrence of fibrinous deposits, especially on the tonsils, as an expression of tuberculosis. (*c*) The penetration of the bacilli into the peribronchial lymph spaces. (*d*) The value of and reasons for serious effusions. (*e*) The development and resolution of consolidation.

The key of the whole proposition in the treatment of pulmonary tuberculosis is the artificially bringing about of the resolution of consolidated lung. In other words the sole difference between a pneumococcic pulmonary consolidation and a tuberculous pulmonary consolidation is that, in the former resolution of the lung nearly always takes place, whereas in the latter it more often does not.

Consolidation of the lung is the presence within the pulmonary alveoli of a firm or solid exudation. The process, before it ultimately resolves, passes

through the following stages: (1) Congestion. (2) Red hepatization. (3) Grey hepatization. (4) Resolution.

The following account from Zeigler's Pathological Anatomy well describes the final stages of Resolution. "As the coagulated exudation liquefies; its removal becomes possible. *This takes place chiefly by reabsorption, in part also by expectoration.* During this process the lung appears as if saturated by moisture; it is beset with leucocytes, but not in excessive numbers, and its tissue is easily torn. *In the great majority of cases complete recovery takes place, so that after reabsorption is complete nothing remains of the affection.*"

In tuberculosis this intricate process may stop at any point. As a matter of fact different parts of the affected lung usually respond in different manners. Thus some sections resolve and some remain congested. Others again sluggishly halt in various stages of red and grey hepatization.

The final stages of unresolved tuberculous consolidation, such as fibrosis, ulceration, caseation, cavity formation, and calcification, are simply expressions of either sullen resistance, or of complete capitulation to the inroads of the tubercle bacillus. *They are of no future interest, since artificial resolution can easily be brought about.*

Every practitioner of experience has watched the dilating nostrils of the pneumonic patient. In poorer class practices it is the pathognomonic differentiation in children between diseases of the chest and those of the abdomen.

To those who like myself have watched a child stuffed with adenoids, and with a large pulmonary consolidation, make persistent and untiring efforts to breathe through the nose, instead of breathing as usual through open mouth; not merely is the physiological capacity of the nose to form antibodies demonstrated, but it visualizes also our inherent instinct to resist disease.

Now I have by means of insufflations of tubercle bacillary emulsion artificially brought about the resolution of tuberculous consolidation both in its early stages, and after secondary changes have taken place. In other words consolidation of a few days duration, and again in cases unresolved even after fifteen years.

The length of time required is roughly proportionate to the duration of the consolidation. Thus in the early stages, tuberculous consolidation can be made to resolve as speedily as is usual in pneumococcic cases. In old cases it may take months to accomplish, but it is interesting to notice the similarity of physical signs with the return to normal.

The mysteries of physiology and pathology are unlimited. But how extraordinary and marvellous is the chain of events by which a few insufflations of one ten thousandth of a milligram of tubercle bacillary emulsion on the epithelial cells of the ethmoidal region can bring about the resolution of a pathological exudate in the alveoli of the lungs!

Is the process nervous or telepathic, psychic or humoral? And be it remembered this is originally a normal physiological circumstance, whereby the deposition of bacilli on the ethmoidal epithelium inhibits and prevents their growth in other parts of the body.

Its employment by the physician is required only when anatomical faultiness precludes a normal function.

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Medicolegal Notes.

Revocation of License for Misconduct.—A petition for a writ of prohibition to restrain the Massachusetts Board of Registration in Medicine from holding a hearing on a charge against the petitioner of gross misconduct in the practice of his profession, with a view to the revocation of his certificate of registration, alleged that the statute, St. 1917, c. 218, under which the board intended to act, was unconstitutional. Affirming an order of the board dismissing the petition the Massachusetts Supreme Judicial Court says: "The right to follow a legitimate calling for any lawful purpose is sacred and is protected both by the Constitution of the United States and that of this commonwealth. The right of a physician to toil in his profession as well as that of all other citizens to labor in their chosen work is both liberty and property, partaking of the nature of each, and is guaranteed by constitutional mandate from unwarrantable interference. U. S. Constitution, art. 14 of Amendments, § 1; Declaration of Rights, arts. 1, 10; Coppage v. Kansas, 236 U. S. 1; Bogni v. Perotti, 224 Mass. 152. This right with all its sanctity and safeguards is not absolute. It must yield to the paramount right of government to protect the public health by any rational means. No argument is required to demonstrate that legislation reasonably designed to promote the general health of members of society is within the welfare clause of our Constitution, pt. 2, c. 1, § 1, art. 4. Laws requiring the examination, registration and certification of physicians and prohibiting all others, with exceptions not here material, from practising medicine, have been upheld as not violative of any constitutional provision. Commonwealth v. Porn, 196 Mass. 326; Commonwealth v. Jewelle, 199 Mass. 558; Commonwealth v. Houtenbrink, 235 Mass. 323. Their validity rests upon the proposition that those who undertake to cure the ills, to treat the ailments, to prevent the diseases, and to relieve the sufferings of the race may be required to show themselves possessed of technical skill to those ends. Soundness of moral fiber to insure the proper use of medical learning is as essential to the public health as medical learning itself. Mere intellectual power and scientific achievement without uprightness of character may be more harmful than ignorance. Highly trained intelligence combined with disregard of the fundamental virtues is a menace. A physician, however skillful, who is guilty of deceit malpractice or gross misconduct in the practice of his profession, even though not amounting to an offence against the criminal laws, well may be thought to be pernicious in relation to the health of the community. It is for the Legislature to determine within reasonable limits in the exercise of the police power what the tests shall be for moral character sufficient to enable one to continue in the practice of medicine. The statute in this particular is not open to objection. The circumstance that the petitioner already had been registered and given a certificate to practise medicine gave him no immunity against future legislation of the nature embodied in said chapter 218. He had no vested right to prey upon society by the exercise of deceit, malpractice or gross misconduct in the practice of his profession. His license to practice constituted no contract of that nature. Burgess v. Mayor and Aldermen of Brockton, 235 Mass. 95, 100, 126 N. E. 456. The statute affords every reasonable safeguard to protect the rights of the petitioner by requiring a hearing at which he may be present with witnesses and counsel and providing also for hearing in court and revision and reversal of the finding of the board, if justice demands such action." The entering into an agreement to perform or attempt to perform an abortion would warrant, if it would not require, the revocation of a license to practise.—Lawrence v. Briry (Mass.) 132 N. E. 174.

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ALCOHOL AND PSYCHOLOGY.

THE importance of psychology is beginning to be recognized as a branch of medical science which should be studied closely and the lessons learned therefrom applied in a practical way. At many of the chief medical schools, chairs of psychology have been established and treatment of certain mental states on psychological lines has met with a very considerable amount of success. No doubt, as the teaching and practice of psychology develop, such treatment will advance pari passu. Of all the works on psychology written recently none has had a greater vogue than McDougall's "National Welfare and National Decay," and in this book he deals at some length with the alcohol question from the psychological standpoint. In a paper read before the British Society for the Study of Inebriety in January 1922, an exhaustive abstract of which was published in the *Medical Press and Circular*, January 25, 1922, Dr. Charles F. Harford, discusses some of the views set forth in McDougall's widely recognized book. For example, McDougall accepts the new division of races of Western Europe into the Nordic races and the Mediterranean; the former he styles introverts, the latter extroverts, and in contradistinction to the well known views of Sir Archdall Reid, he advances the following hypothesis. He argues that the greater proneness to alcoholic intoxication of the Northern peoples, and the greater sobriety in this respect in the Mediterranean peoples is to be found in the introvert quality of the Nordic race. Alcohol acts on the nervous system in a way which renders it temporarily extrovert; and thus for the introvert it brings relief from the brooding melancholy to which he is constitutionally liable; it enables him to enjoy the freedom of emotional expression, which in his normal condition is denied him by his introvert tendency.

Harford finds it hard to reconcile the introvert type with the British peoples as such, but the argument as applied to introverts and extroverts is suggestive. It is not unlikely, however, that the climate of northern countries conduces as much to strong drink as the psychology of its individual members. Dull cold weather tends to melancholy, and those who have lived and whose forebears have lived under climatic conditions of this nature for generations are apt to become of a melancholic temperament. However, no doubt psychology plays a rôle in the production of a brooding state of mind.

That part of McDougall's book which discusses the alcohol problem as affecting the colored races is of the first interest. The menace of alcoholism is chiefly concerned with the negro races, and the author says, regarding this, that while it is impossible in any accurate way to describe a common negro psychology, yet there are certain characteristics, especially of the pagan races, which amount to some extent to what may be termed a group mind, which belongs to all. (1) They are essentially extroverts in that they are light hearted, irresponsible, and ready to take things as they are. This is indicated by their merry ways, their dances, and their songs. As instances of the latter, we may quote their boat songs, the songs accompanying their dances, their hymns, and the plantation songs of Kentucky. (2) They are suggestive and imitative. Phantasy rather than reality is that which largely influences them. (3) They have strong social instincts. The influence of tribe or chieftainship is an essential point in their lives. (4) They have strong religious instincts in which phantasy has a prominent place, as shown by images, totems, and witchcraft. As the writer is at pains to point out in the article above mentioned, all of these apparently innate characteristics of the race predispose its members in many ways to drug addiction, and particularly to the use of alcoholic liquors. The regions of phantasy are more easily reached through alcohol than in any other way. Dr. Harford attributes the prevalence of drinking among the native of Africa, as well as of the Pacific Islands, to the influence of Europeans and other white men who have introduced drinking and other vices of civilization, and in the natives have found virgin soil in which these habits have flourished exceedingly. He further holds that the only possible remedy is the banishment of drink from these areas without question of racial discrimination.

With McDougall's opinions as to the psychology of the northern races leading to their addiction to alcohol there are grounds for dissent, and in fact, the views of Sir Archdall Reid appear more reasonable. But no thinking person can disagree with his views with regard to the extremely injurious effects of alcohol on the negro races owing to their psychology, which renders them peculiarly susceptible to its influence. Indeed, the psychology of the negro resembles in many features that of a child. Irresponsibility and phantasy are predominant in the minds of children and negroes alike, and it is easy to understand that races or people possessing this stamp of mind are especially amenable to the effects of alcohol, and that consequently they should be debarred from using it. Harford suggests that a good deal of the unrest which is so widespread at the present time may be due to alcohol or, at least, aggravated by it.

BASTEDO'S SYMPTOM IN THE DIAGNOSIS OF APPENDICITIS.

THIS phenomenon was described by Bastedo of New York in 1911 and since that period several European surgeons have written papers on "Bastedo's symptom," which consists in induced pain following colonic insufflation, a negative result sufficing to exclude appendicitis in differential diagnosis. The most recent article on this symptom is by Jerlov of Karlstad, Sweden (*Acta Chirurgica Scandinavica*, November 16, 1921, liv., 2), who has analyzed 100 cases of abdominal troubles in making or excluding the diagnosis of appendicitis. The author's technique is somewhat elaborate and, as the reader is doubtless familiar with the original method of Bastedo, may be passed over. For control each patient was also tested for the Rovsing symptom. Sixty of the hundred patients and appendicitis verified by operation, one had periappendicitis and one a neoplasm of the appendix. The remaining 38 patients had no affection of the appendix. Among the 60 cases of appendicitis practically all forms were represented, as chronic catarrhal, chronic catarrhal with acute exacerbation, ulcerous and gangrenous forms, and appendicitis with peritonitis.

Analyzed in detail, Bastedo's symptom was positive in 13 out of 24 cases of chronic catarrhal appendicitis and negative in 11; positive in 17 out of 19 cases of chronic catarrhal appendicitis with acute exacerbation and negative in 2; positive in 13 out of 14 cases of ulcerous or gangrenous appendicitis and negative in one; and positive in each of 3 cases of appendicitis with peritonitis. It therefore is a sign of much value in active appendicitis but equivocal in the interval case. In the latter the pressure in the colon was run up to 50 mm. mercury, while in the other forms the symptom was induced with a pressure of 31-33 mm. Hg. The silence of so many interval cases was due in some at least to adhesion formation. In the 38 cases in which operation had revealed the appendix intact or, in a few cases, absent from previous extirpation, the sign of Bastedo was uniformly negative. These patients presented varied conditions, such as cystopyelitis, salpingitis, biliary affections, nephrolithiasis, gastric ulcer, thoracic affections simulating abdominal, etc. In this series several of the patients did not go under the knife, but appendicitis could be excluded to the author's satisfaction. The motivation of the pain is not so simple as at first sight appears. Its site is doubtless in the appendix purely for it never reappeared after extirpation. Probably a mobile appendix is necessary to evoke pain in the silent cases. The author is unable to confirm the finds of Rost to the effect that a positive Bastedo is sometimes obtainable in enterocolitis; due in all likelihood, however, to traction on an inflamed mesentery. He concludes that in hospital practice with proper selection and strictly carried out technique this symptom has considerable absolute value, although since the diagnosis can usually be made in its absence, its use must be restricted. In acute peritonitis of unknown cause there is no necessary contraindication to its employment.

THE PORT OF NEW YORK AND THE TRANSIT PROBLEMS.

AT a meeting of the New York Academy of Medicine on February 16, the replanning of New York City and its transit, transport, and sewage problems were discussed. These matters should be of personal and technical interest to physicians, for they involve questions of proper housing, of cheaper and better food supply, of over-crowding of passengers, and in general of the intensive progress of our city's congestion. Both Mr. Stein, who presented the plan of the Port Authority, and Gen. O'Ryan, who presented that of passenger transit, agreed that the "disease" of the City was this progressive congestion, for the help of which no previous planning has been made.

The New York Transit Commission presents a scheme for relieving passenger transit by condemning and getting possession of all the present 2,000 franchises that now control the situation, and of consolidating into three companies the transportation under these corporations. The Port Authority's plan for the City provides for direct delivery of freight through tunnels to Manhattan and to Long Island. But this plan would mean nothing for the betterment of the city unless accompanied by the development of the so-called "Garden-City" units, *i. e.* suburban centers of limited size arranged to provide for industrial activities and for residences of the workers near where they work. The land of each suburban unit would be owned by the people who lived there and each city unit is to be surrounded by fields and woods and to be limited in population. A city growing in this way could expand happily and almost indefinitely, if the sewage and water supply problem could also be satisfactorily solved.

The medical profession was eloquently appealed to by Gen. O'Ryan to take an interest in and give support to these efforts to have not a bigger but a better city. The details of the two plans are given in our report of the meeting published on page 348 in this issue of the MEDICAL RECORD.

MULTIPLE PRIMARY CARCINOMA.

ON account of the great infrequency of this coincidence, authentic cases are invested with considerable interest. In a cancerophile subject it is difficult to understand why multiple irritation does not more frequently cause multiple primary cancer, and this failure suggests something like an immunizing effect of a first cancer which prevents the development of other lesions. In 1894 Frankel, a French author, could find records of but fifteen cases, and several more were added during the nineties from French sources. In 1902 G. Muller published a series of twenty-nine cases and since then, including a number which were overlooked by collectors and some miscellaneous autopsy finds, the recorded num-

ber should have at least doubled. The coincidences are of the most bizarre character, including cancroid with true carcinoma. Perhaps the most nearly unique case was a triple cancer of the pharynx, stomach, and rectum, each of a different histological character. The pharyngeal cancer was a squamous cell, the stomach growth a medullary cancer, and the cancer of the rectum an adenocarcinoma. This case appeared in the *Zeitschrift für Krebsforschung* for 1909, and a close second is the case of Walter of a pavement-cell cancer of the cardia, a fibrocarcinoma of the uterus, and a cylindroid cancer of the uterine cavity. These cases, however, are really pathological curiosities and, moreover, each case reported of this type is usually challenged as founded on defective observation, since it is difficult to prove beyond doubt that one growth is not secondary to the other or others. The entire subject is covered by Renaud in the *Revue médicale de la Suisse romande* for December, 1921, xli., 12. His own contribution is not of great interest, as the subject presented a cancroid (squamous-cell) of the left frontoparietal region with a basal-cell cancer of the right temporal region. The difference in histological structure is of interest, although generally speaking multiple cancroid of the face is not usually reckoned among cases of multiple cancer, and is not in itself so very rare.

The Index of Robustness.

There is an alleged law that the weight of an individual in kilograms should be equal to the number of centimeters of height over and above one meter. When Meo sought to verify this law on the persons of certain West African negroes he found notable departures which could not be explained by the assumption of inferior specific gravity. These aborigines are of the natural athletic type, agreeing with the developed and more or less artificial white athlete. Heckel in the interest of the alleged relation between weight and height has availed himself of the known measurements of many pugilists although the only weights given are the socalled fighting weight (*La Presse Médicale*, December 31, 1921, xxix., 105). A tabulation shows that the excess of centimeters over a meter is invariably greater than the weight. The discrepancy is stated to be the same as in the natural negro athlete, indicating that the two classes of men have the same specific gravity. In such a case there should be the same amount of adipose tissue in each class, although one can hardly visualize the possibility that the African negro is as destitute of superfluous fat as the white man who has gone through intensive training for some weeks. The author, who is an athletic director at Rheims, estimates the average amount of weight lost by training as 5 to 6 kilos. A source of fallacy not mentioned is that intensive training is something more than taking off fat; it is a "drying-out" as well, especially in the final hours of training. Measurements of density of recent years have shown figures much lower than those once registered in textbooks and the entire subject of human specific gravity is unsettled. The author, who has measured many individuals of all degrees of robustness, points out that a relatively high density means muscular robustness because of the greater bulk of the muscles which have an individual specific gravity of 1.06. A man chiefly muscle and bone, deprived of fat and excess water, would necessarily have a high specific gravity.

News of the Week.

Influenza in Connecticut.—A survey made by the State Department of Health of Connecticut shows that 1043 cases of influenza have been reported in that State since January 1. There has been an increasing number of cases of pneumonia developing from it, 30 to 45 per cent. of which have proved fatal. The survey shows 142 cases of smallpox in nine towns.

Influenza in Uniontown, Pa.—A report to the New York *Herald* under date of February 10 states that approximately 10,000 persons, or 50 per cent. of the population of Uniontown, are ill with influenza, and unless drastic measures are taken the situation will become extremely serious.

New York State Death Rate in 1921 Lowest on Record.—The death rate of New York State for the year 1921 reached the new low level of 12.2 per thousand of the population, according to calculations completed by the State Health Department's Division of Vital Statistics. This rate may be compared with that of 13.8 for the year 1920, and that of 14.7 for 1914, the year in which the State Department of Health was reorganized and took on its present form. In terms of lives saved, the rate for 1921 means that approximately 16,000 more residents of the State are now living than would have been the case if the 1920 death rate had not been reduced as above indicated. Comparing 1921 with 1914, the difference in the death rate means that 26,000 more people are now alive than would have been if the 1914 death rate had prevailed up to the present time. New York City, with a death rate of 11.2, still retains its lead over the remainder of the State, for which the 1921 rate was 13.5 per 1000 of population. In the up-State area it is also of interest to note that the 1921 rate in cities was 12.6 as against 13.5 for the rural area.

More Hospitals for Ex-Soldiers.—According to a statement made by Chairman Langley of the House Public Buildings and Grounds Committee, President Harding has given his approval to the bill authorizing an appropriation of $16,000,000 for the construction of additional hospitals for war veterans. Passage of the bill also is advocated by the Federal Board of Hospitalization, with the recommendation that a clause providing that $500,000 be expended in enlarging Mount Alto Hospital, Washington, D. C., be eliminated. The bill will be taken up by the House at an early date.

Chicken Salad Poisons Girl Students.—More than three hundred students of the Mississippi State College for Women at Columbus suffered from food poisoning caused by eating chicken salad served at the evening meal on February 12. Although a large number were seriously ill, no deaths occurred.

To Provide Rural Doctors.—The State Grange, at its annual convention held in Binghamton, N. Y., on February 10, went on record in favor of the plan of M. E. Gregg of Mottville, N. Y., who proposes that each country community now without a

physician, erect a home and a small hospital for the use of any physician who will settle there. Dr. Gregg says that where a farming community erects a home, the Rockefeller Foundation will send a physician, thus providing medical service for those places in the State now without it. Dr. Gregg further states that the plan has received the approval of the State Association of Health Officers. The State Department of Health and the Rockefeller Foundation will be asked to join in the movement.

Hearing on Betts Bill.—A hearing on the Betts bill, which would forbid experiments on living dogs, was held in Albany on February 7. The same bill has been before the Legislature for ten successive years. Among the advocates of the bill were Dr. Joseph J. Harrigan, representing the New York Anti-Vivisection Society, and Dr. Willard Carver of New York. Opposition to the bill included Dr. Simon Flexner, director of the Rockefeller Institute; Dr. H. B. Williams of Columbia University, and Dr. Augustus B. Wadsworth of the State Department of Health.

Bill to Provide Scholarships in Medical Colleges.—A bill was introduced into the Virginia Legislature on February 2, authorizing the board of visitors of the Medical College of Virginia to offer twenty State scholarships in the department of medicine to students from Virginia, and making an appropriation of $5,000 each for the years 1923 and 1924 for this purpose. The bill carries this additional provision: "Every student receiving the benefits of the scholarship provided for in this act shall practise medicine for a peroid of not less than five years after graduation in a rural section of the congressional district from which he or she is appointed, or shall repay the value of the scholarship to the Medical College of Virginia within the same period of time." The scholarships are to be allocated, or apportioned, two to each of the ten congressional districts, the benficiaries to be selected following competitive examinations.

Dean Edsall Urges Correlation of Medical Study.—Dr. David L. Edsall, in his annual report as Dean of the Harvard Medical School, lays special emphasis on the need of correlation in medical study, and particularly in the correlation of teaching in medicine and public health, so that the practising physician and the public health officer may learn to work together for the public service. Dean Edsall says: "It is not so much the details of knowledge that are omitted; the knowledge needed for his public health relations is for the most part the same, as has been indicated, as that the physician needs and acquires when well prepared for the practice of medicine. Some things should be added to it, not in extensive detail, but in the form of the principles that guide public health. The chief thing needed, however, is to make the public health aspects of the physician's knowledge and of his activities more visible and living. For this reason, the establishment of the new School of Public Health at Harvard, which will probably open next autumn, and will be closely related to the Harvard Medical School, may prove to be the most important development for many years in its influence upon the medical school.

Columbia University Gathers Ideas for New Medical School.—A committee representing the Medical School of Columbia University, New York, inspected the general hospital and the medical college of the University of Cincinnati, Saturday, for the purpose of gathering ideas for the proposed new medical school at Columbia. The delegation included Edward Harkness and William Sloane, James Gamble Rogers, architect; Dr. William D. Darrach, dean of the Columbia Medical School, and Dr. C. C. Burlingame.

New Plan to Eliminate Tuberculous Cows.—The State Department of Agriculture has initiated a project whereby it hopes to eradicate tuberculosis among the dairy herds of the State. The method proposed is known as the free area plan and involves the creation of zones, and the examination of all cattle and the extermination of all affected animals within their boundaries, extending by degrees the territory of such complete supervision until the whole State is included. At present 30 veterinarians are examining herds in these ten counties under the free area plan. In 1919, figures available at the State Bureau of Animal Industry show that $132,701 was expended in the effort to eliminate tuberculous cattle in this State; in 1920 the figure was $506,857, and last year $1,558,112. Out of a total of 130,584 cows examined by the State agents last year, 19,897 were found to be tuberculous and were slaughtered. Under the new plan the loss is distributed between the Federal Government, the State, and the counties.

Campaign to Save Eyes.—Plans to carry eye conservation into industry, schools and colleges, the professions, athletics and other forms of effort were announced recently following a series of meetings and conferences of industrialists, educators and eye experts from various parts of the country, held in New York under the auspices of the Eyesight Conservation Council of America. The campaign will be under the general direction of L. W. Wallace, executive secretary of the American Engineering Council of the Federated American Engineering, and is largely the outcome of the disclosures of huge waste in men and money through defective vision made by the Hoover Committee on Elimination of Waste in Industry. According to figures presented at the conference, the eye is found to be involved in 11 per cent. of all the permanent industrial accidents of the country, and approximately 25,000,000 workers in the United States have defective vision that requires correction.

Immunity of Jews Cuts Tuberculosis in New York.—At the annual meeting of the New York Tuberculosis Association, held on February 8, G. J. Drolet, statistician of the association, stated that the marked decline in tuberculosis during the last few years demanded explanation. He accounted for it on the ground that prohibition had reduced the amount of misery and increased the amount of money available for food, clothing, and shelter. The resistance of the people has been increased by the general rise in the standard of living. Mr. Drolet stated that in New York City this coming into the population of a large group of Jewish stock, noted for their immunity to all diseases that commonly characterize congested city life had been a factor in reducing the death rate from tuberculosis. A recent study of the tuberculosis death rate in each of the small sani-

tary areas of Manhattan has revealed that the lowest mortality prevails in districts like Mount Sinai, Gouverneur, Corlears, and Stuyvesant in the extreme lower East Side, which are largely Jewish, whereas in all the districts of the lower West Side, where live most of the longshoremen, stevedores, and the poorer immigrants of Irish and Italian stock, as well as the artist and bohemian colonies of Greenwich Village, the tuberculosis mortality was several times larger."

Plan Extensive Maternity Study.—At the annual meeting of the Maternity Center Association, New York, it was officially announced that the association had begun a scientific study of the essentials of complete maternity care and that it was opening a new chapter in the fight to cut down the mother and baby death rate in the United States. More than a million pamphlets are being prepared for nation wide distribution. The annual report of the association showed that during the year 8211 patients were reported for care, 48,729 visits were made to the homes of patients by nurses and 23,002 visits were made by the patients to the twenty-five nursing centers maintained by the association.

Undernourished Children of the Rich.—The annual report of the Board of Education of South Orange, N. J., made public on February 13, declared that at least one-third of the school children were undernourished and that "a mother's care cannot be replaced by a servant's judgment." The report states that there is more undernourishment in the homes of the well-to-do than in those of moderate circumstances. The report further declares that undernourishment is the greatest evil with which the school authorities have to contend.

Glandular Fever in New York State.—A number of cases of illness in children which are in all probability instances of so-called glandular fever have recently been reported to the State Department of Health. Small epidemics of this condition have been noted elsewhere within the last few years. The January issue of *Health News*, the bulletin of the New York State Health Department, calls attention to the outstanding points in the differential diagnosis of this condition.

Campaign in Breast Feeding.—The Children's Bureau of the United States Department of Labor has entered upon an intensive nation-wide campaign of education in the importance of breast feeding, in which work the departments of health of the States are asked to lend their active cooperation. Dr. Florence McKay, Director of the Division of Child Hygiene, New York State Department of Health, asks the assistance of all public health workers in promoting the spread of knowledge regarding this very important measure for child health. Dr. McKay is mailing a copy of Breast Feeding, published by the Children's Bureau, to every health officer and public health nurse in the State.

Newark Physicians to Have Office Buildings.—A six-story building to be devoted entirely to offices for physicians and dentists will be erected at 23 and 25 Hill Street, west of Broad Street, Newark. The estimated cost of the building is $150,000.

Medical Office Building for New Orleans.—An association of New Orleans physicians is making preparations for the erection of an eight-story office building for physicians at Prytania and Aline streets, near the Touro Infirmary.

The New York Academy of Medicine, at its stated meeting held February 16, adopted an amendment to its constitution increasing its resident fellowship from 1,350 to 1,400 and its nonresident fellowship to 300.

Flatbush Physicians Oppose Bills.—The Flatbush (Brooklyn) Medical Society, at a meeting held at the Union League Club on February 10, put itself on record as opposed to the Male bill, the State Maternity bill, the Chiropractic, Optometrist, and the Medical and Dental Inspection and Attendance bills now before the State Legislature.

Hospital Notes.—The name of the United States Public Health Service Hospital 61 at Fox Hills, Staten Island, N. Y., has been changed for the third time. Hereafter it will be known as United States Veterans' Hospital 61. The change is said to have been made because of confusion between this institution and the United States Marine Hospital, which is also a Public Health Service Hospital.

Plans are approaching completion for what will probably be known as the Charlotte Eye, Ear, Nose, and Throat Hospital to be located at Charlotte, N. C. The cost of the new hospital is estimated at $100,000.

Work will be started soon on the Nellie Johns Memorial Hospital, to be erected at a cost of $15,000 on the campus of the Kansas Industrial and Educational Institute, Topeka, Kan.

The citizens of Baltimore have authorized the expenditure of $750,000 to be raised by special loan for a new municipal hospital, which will be located in the Hillen Road Section.

Johns Hopkins Hospital has work under way on a new $380,000 pathological building and a $400,000 hospital for women.

The University of Maryland will build a nurses' home for about $300,000 as the first unit of new construction to involve finally an outlay of $1,250,000.

Bids are being received for a new building for the Union Memorial Hospital, Baltimore, which will cost something over $1,000,000. Its present building will be used as a colored hospital, to be known as the Victory Hospital.

Cleveland's new city hospital which, when completed, will cost $3,500,000, will not be opened until 1923, unless the additional $700,000 necessary for its operation can be secured from some source yet undiscovered. The hospital building will be ready for occupancy by May 1.

Plans have been completed for a 500-room hospital, which, it is estimated, will cost $1,000,000, to be erected on a six-acre tract bounded by Washington and Twentieth streets, Los Angeles. The hospital will be known as the University Hospital and Clinic. The College of Physicians and Surgeons is already located on the tract.

Hays County, Texas, is conducting an intensive campaign to raise $50,000 with which to build and equip a memorial hospital as a tribute to the

boys who went from this county to the World War.

The Physicians' and Surgeons' Hospital Association of Wilmington, Del., is planning to build a new hospital at Broome and Chestnut streets.

The State Hygiene Department has recently purchased a site at Warren, Ohio, for a $100,000 tuberculosis hospital.

Property has been acquired at Russellville, Ark., which is to be used by the United States Public Health Service as a trachoma hospital.

An article in the Los Angeles *Examiner* announces that the Mayo Brothers of Rochester, Minn., are negotiating for a site in Los Angeles for one of the largest hospitals in the world.

Dr. Ernest LaPlace of Philadelphia was the guest of honor at a dinner given by the Right Reverend Peter Masson, director of the Sacred Heart Hospital, Allentown, Pa., to eight physicians and friends. Dr. William J. Hausman, Jr., officiated as toastmaster.

Dr. James Clark of Endicott City, Md., was recently elected president of the Howard County Public Health Association.

Dr. Charles H. Crampton of Harrisburg, Vice-President of the Colored American Medical Association, has been appointed by State Health Commissioner Martin to lecture on venereal diseases to the colored people of Pennsylvania.

Dr. J. M. Davies of Utica, N. Y., has been elected president of the Board of Managers of the Oneida County Hospital.

Dr. Arch I. Carson has been appointed a member of the Board of Health of Cincinnati by Mayor Carrel to fill the vacancy created by the death of Dr. E. Gustav Zinke.

Charitable Gifts and Bequests.—By the will of the late Rachel E. Reimer of Haddon Heights, N. J., bequests are made as follows: The Philadelphia Home for Incurables, $1,000; the Children's Homeopathic Hospital of Philadelphia, $500.

Leverett Newcombe of Vineland, N. J., has agreed to donate to the Vineland Hospital Association between $150,000 and $200,000; this includes two city lots blocks, valued between $20,000 and $30,000, to be used as a site for the hospital.

By the will of the late Ann Ward Pearsall of Lower Merion, Pa., the sum of $10,000 is bequeathed to the Episcopal Hospital of Philadelphia.

By the will of the late Harry D. Schell of Philadelphia bequests are made as follows: Northwestern General Hospital, $25,000; American Oncologic Hospital, Methodist Hospital, Howard Hospital, Children's Homeopathic Hospital, each $10,000, one-half of the last for the endowment of a bed in memory of the testator's wife, Kate D. Schell; Philadelphia Home for Incurables, Frederick Douglass Memorial Hospital, Hahnemann Hospital and Medical College, Jewish Hospital, Devitt's Camp for Consumptives, Woman's Southern Homeopathic Hospital, Pennsylvania Hospital, each $5,000; Kensington Hospital for Women, $6,000; Woman's Medical College, Woman's Hospital, West Philadelphia Hospital for Women, Women's Homeopathic Association, each $2,500; Philadelphia Orthopedic Hospital and Infirmary for Nervous Diseases, $2,000; Maternity Hospital, Frankford Hospital, Germantown Hospital and Dispensary, Gynecean Hospital, Philadelphia Polyclinic and College for Graduates in Medicine, Rush Hospital for Consumptives, each $1,000; Northern Dispensary, Southern Dispensary, each $500.

The will of Mrs. Minnie Croy Whitmore of Dayton, Ohio, provides for a bequest of $50,000 to the Miami Valley Hospital Society to be used for the construction of a building for the treatment of deformed and crippled children.

By the will of the late James M. Stokes of Philaphia the sum of $1,000 is bequeathed to Hahnemann Hospital as a memorial to the wife of the testator, Anna D. Stokes.

Course in Infectious Diseases and Public Health.—The annual course in Infections Diseases and Public Health given by the Albany Medical College in co-operation with the State Department of Health will begin March second. A program of the course will be mailed to any physician upon request.

Harvey Lecture.—Dr. William M. Bayliss, Professor of General Physiology, University College, London, will deliver the seventh Harvey Society Lecture at the New York Academy of Medicine, Saturday evening, March 4, 1922. His subject will be "Vasomotor Reactions and Wound Shock."

Medical Society Elections.—THE HARRISBURG (PA.) ACADEMY OF MEDICINE, at its annual meeting held Jan. 27, 1922, elected the following officers for the ensuing year: *President*, Dr. E. R. Whippel; *vice-president*, Dr. H. F. Gross; *second vice-president*, Dr. A. J. Ritzman; *secretary-treasurer*, Dr. Gilbert Dailey; *trustee*, Dr. Park A. Deckard.

THE NEW YORK TUBERCULOSIS ASSOCIATION, at its annual meeting held Feb. 8, elected the following officers for the ensuing year: *President*, Dr. James Alexander Miller (re-elected); *vice-president*, Homer Folks; *treasurer*, Thomas W. Lamont; secretary, Dr. Nathan E. Brill.

THE PORTSMOUTH (N. H.) MEDICAL SOCIETY, at its annual meeting held Feb. 7, 1922, elected the following officers for the ensuing year: *President*, Dr. George A. Tredick; *secretary*, Dr. L. R. Hazzard; *treasurer*, Dr. H. L. Taylor.

Obituary Notes.—Dr. MILTON B. BLOUKE of Chicago, a graduate of the Chicago Homeopathic Medical College in 1885, died in St. Petersburg, Fla., on Feb. 12, at the age of fifty-nine years. He served for fourteen years on the staff of the Cook County Hospital.

Dr. JOHN B. CARSON of Blairsville, Pa., a graduate of Jefferson Medical College in 1889, died suddenly on Jan. 30, at the age of fifty-five years. He was a Fellow of the American Medical Association and a member of the Medical Society of the State of Pennsylvania.

Dr. LUCIUS ELY FELTON, formerly of Potsdam, N. Y., died at his home in Hanford, Cal., about Jan. 20, at the age of seventy-three years. He was graduated from Bellevue Hospital Medical College in 1871, was an ex-president of the Northern New York Medical Society and an ex-president of the Hanford Board of Health. He was a member of the Federal Pension Board for forty-nine years.

Dr. HARRY C. BARTLESON of Lansdowne, Pa., died on Jan. 29, at the age of seventy-seven years. He served in the Eighth Maryland Volunteers during the Civil War, being mustered out as Captain. He

was graduated from Jefferson Medical College in 1870. He was a member of the Delaware County Medical Society, the Medical Society of the State of Pennsylvania, and the American Medical Association.

Dr. ARTHUR M. HEILMAN of Butler, Pa., died in a hospital at St. Petersburg, Fla., of cerebral hemorrhage on Jan. 30, at the age of forty-three years. He was graduated from the Medical Department of the University of Pennsylvania in 1902.

Dr. JOHN ADDISON JENKINS of Brooklyn, a graduate of Bellevue Hospital Medical College in 1865, died on Feb. 4, at the age of seventy-eight years.

Dr. SAMUEL RUSSELL died at his home in Brooklyn on Feb. 3, at the age of eighty-four years. He was graduated from the Long Island College Hospital.

Dr. GEORGE BLEY of Beardstown, Ill., died suddenly at Bunker Hill on Jan. 17, at the age of seventy-one years. He was graduated from Jefferson Medical College in 1881.

Dr. HUGO MALOR, a graduate of the University of Louisville Medical School in 1898, died at his home in Louisville, Ky., on Jan. 19, at the age of sixty years.

Dr. WALTER B. MILLER died of heart disease at his home in Millerton, N. Y., on Jan. 13, at the age of sixty-six years. He was graduated from Albany Medical College in 1882.

Dr. HYRUM SMITH WOOLLEY of Pocatello, Idaho, died suddenly on Jan. 10, at the age of forty-eight years. He was graduated from the Northwestern Medical School in 1909.

Dr. FLOYD J. GREGORY, JR., of Keysville, Va., died of pneumonia in Chase City, Va., on Jan. 20, at the age of forty-seven years. He was graduated from the Vanderbilt University Medical School, Nashville, Tenn., in 1901.

Dr. HENRY M. HOLZCLAW, a graduate of Bellevue Hospital Medical College in 1881, died on Jan. 22, at the age of sixty-one years.

Dr. ELIZA MARKWELL MITCHELL of Kansas City, Mo., died on Jan. 31. She was graduated from the University of Michigan Medical School, Ann Arbor, in 1877.

Dr. BELLE J. MACDONALD of New York, a graduate of the Willamette University Medical Department, Salem, Ore., in 1886, died in Palermo, Sicily, on Feb. 10, at the age of fifty-six years.

Dr. ELIZABETH REIFSNYDER died of heart disease at Liverpool, Pa., on Feb. 4, at the age of sixty-four years. She was graduated from the Woman's Medical College of Pennsylvania in 1881. She served for many years as physician to the Margaret Williamson Hospital at Shanghai, China.

Dr. HANNAH M. THOMPSON died at Wilmington, Del., on Feb. 5, at the age of seventy-five years. She was graduated from the Woman's Medical College of Pennsylvania in 1883.

Dr. ISAAC W. HEULINGS died at Moorestown, N. J., on Feb. 9, at the age of seventy-four years. He was graduated from Jefferson Medical College in 1867.

Dr. JAMES W. HOLLAND died in Jefferson Hospital, Philadelphia, on Feb. 10, at the age of seventy-three years. He was graduated from Jefferson Medical College in 1868. From 1872 to 1875 he was professor of chemistry in the Medical Department of the University of Louisville and editor of the *Louisville Medical News*. From 1885 to 1912 he was professor of medical chemistry and toxicology and dean in Jefferson Medical College. He was at one time president of the Kentucky State Medical Society and a member of the Kentucky State Board of Health. He was a member of the American Philosophical Society, the Philadelphia Medical Society, the Medical Society of the State of Pennsylvania, and a Fellow of the College of Physicians of Philadelphia and of the American Medical Association.

Dr. CHARLES ALEXANDER RHODES of New York died of heart disease at his home on Feb. 14, at the age of sixty-seven years. He was graduated from New York University Medical College in 1884, and was visiting physician to St. Joseph's and St. Luke's Home.

Dr. SARAH ELIZABETH SIMONET of Croghan, N. Y., a graduate of the University of Buffalo Department of Medicine in 1885, died of heart disease on February 3, at the age of sixty-eight years.

Dr. HARRY H. HUBBELL of Corning, N. Y., a graduate of the University of Buffalo Department of Medicine in 1901, died of encephalitis following pneumonia on January 4, at the age of forty-four years.

Dr. HARRY T. CARTER, retired, formerly of Oneida, N. Y., died on Feb. 1, at the home of a relative in North East, Pa. He was a graduate of New York University Medical College.

Dr. STEPHEN KELLY, retired, died from pneumonia at his home in New York City on Feb. 11, at the age of seventy-four years. He was graduated from Bellevue Hospital Medical College in 1871.

Dr. GUY L. MCCUTCHEON of Buffalo, N. Y., died in Phœnix, Ariz., after a long period of ill health, on February 2, at the age of forty-eight years. He was graduated from the Department of Medicine of the University of Buffalo in 1896. He was a Fellow of the American Medical Association, a member of the Erie County Medical Society, and the Buffalo Academy of Medicine. He was on the staffs of the Buffalo General and City Hospitals.

Dr. ADRIAN YOUNG REID of New York died at Pleasantville, N. Y., on February 18, at the age of seventy-three years. He was graduated from New York University Medical School in 1880.

Dr. JAMES MARTIN PEEBLES died at his home in Los Angeles, Cal., on February 15, lacking forty days of being one hundred years of age. He was graduated from the Philadelphia University of Medicine and Surgery in 1876. Dr. Peebles was born in Whitingham, Vt., March 23, 1822, and was graduated from Oxford Academy, in Chenango County, New York, in 1841. He owned and edited a number of papers and went around the world five times, lecturing in Oriental countries. He was a member of the Indian Peace Commission which, in 1868, settled some of the Indian troubles in the Middle West, and in 1869 was United States Consul at Trebizond, Turkey. Later he represented the United States Arbitration League at the International Peace Commission of Europe in Paris. For three years Dr. Peebles was Professor in the Eclectic Medical College of Cincinnati, he was President of the California College of Science for four years and president and founder in 1914 of the

Peebles College of Science and Philosophy in Los Angeles. He founded in the latter city the California Centenarian Club and served as president of the California Humanitarian League. He was the author of a number of books, religious, psychological and similar topics.

Dr. ERNEST GUSTAV ZINKE of Cincinnati, Ohio, died suddenly at Palm Beach, Fla., on January 30, at the age of seventy-six years. He was graduated from the Ohio Medical College, Cincinnati, in 1875, after which he studied in London, Edinburgh, and Vienna. Dr. Zinke was professor emeritus of obstetrics of the Medical College of the University of Cincinnati and a member of the Cincinnati Board of Health. He was a former president of the Cincinnati Academy of Medicine secretary of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons, and a Fellow of the American Medical Association.

Dr. YOUNG HANCE BOND of St. Louis, Mo., died on February 5, at the age of seventy-five years. He was a graduate of University of Maryland School of Medicine, Baltimore. He was a former president of the St. Louis Medical Society, founded the Marion Sims Medical College and when that institution was absorbed by the St. Louis University he became dean of the Medical Department. He was a former member of the St. Louis Board of Health.

Obituary.

DANIEL MACMARTIN STIMSON, M.D., LL.D.

NEW YORK

ONE of the links binding the present generation of physicians of New York with the great ones of the middle of the last century was broken by the death on February 21 of Dr. Daniel M. Stimson at the age of 78 years. He was born in Edinburgh, N. Y., on Jan. 2, 1844, and was graduated from Union College in 1864 and from the College of Physicians and Surgeons in this city in 1868. After a period of post-graduate study in Berlin, Vienna and Paris, he began the practice of medicine in New York City, being associated with Dr. Willard Parker, whose daughter he married in 1871. He was a member of many of the local medical societies, and was for a number of years attending surgeon to St. Peter's, the Presbyterian, and Mt. Sinai Hospitals.

Service Bureau.

Regular subscribers to the MEDICAL RECORD who desire information on any professional matter are invited to send their inquiries to the office of publication. Replies will be sent by mail as promptly as possible. Questions and answers of general interest may be published from time to time. When abstracts of articles from other journals are furnished the cost of typewriting will be charged.

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Subscribers visiting New York are welcome to use the office, 51 Fifth Avenue, as a temporary address for receiving and forwarding mail, telegrams, or small packages.

Correspondence.

THE COST OF THE QUESTIONNAIRE.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—The results of the "questionable questionnaire," as you once called it, have now been published in the *Journal of the American Medical Association*, and are, as you prophesied they would be, wholly inconclusive. The votes of a fraction of the medical practitioners in the country were nearly evenly balanced, with a slight majority in favor of the therapeutic value of whiskey. It has occurred to me to inquire who authorized this expensive straw vote; was it done on the editor's own initiative, or did he tell the trustees of the Association to tell him to start it? In any case, it was a wanton waste of the Association's funds. The dues of the fellows have recently been raised 20 per cent., and if this is the way the additional $40,000 is to be expended, we had better go back to the old price. I have recently got an estimate from a friend familiar with the cost of printing of about how much was expended in this farcical inquiry. His estimate for composition, time work, paper, presswork, binding. and extra postage on the *Journal* was in the neighborhood of $3,000, to which must be added $2,160 for postage on the letters of inquiry and replies, $300 for stationery and an indefinite sum for the tabulation of the replies, extra labor, overhead, etc., bringing the total up to nearly $6,000. Who is responsible for this waste of our money?

A FELLOW A. M. A.

[We regret that we cannot gratify our correspondent's not unnatural curiosity, for we are not familiar with the inner workings of the editorial office of the *Journal* of the Association. So, in the language of the Service, we will pass the buck, and let George do it.—ED.]

WHAT IS NEEDED IN THE PRESENT CRISIS.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—The remedy for the apparent lack of understanding between the public and the medical profession, now occupying the attention of Commissioner of Health Copeland and other physicians, is simple if properly applied. It lies in this. Let the public turn its attention from matters medical to matters legislative. The medical profession, through self-abnegation and achievement, has earned the right to public confidence. The legislature has done just the reverse of this. Let the legislature stop authorizing deluded people, fools, and dishonest persons, to care for the sick professionally and the problem is solved.

WILLIAM J. CRUIKSHANK, M.D., F.A.C.P.
102 FORT GREENE PLACE,
BROOKLYN, NEW YORK.

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, Jan. 31, 1922.

Industrial Medicine.—In the realm of preventive medicine, no phase of it is of greater importance than that of industrial medicine. It is obvious that unless the worker is in good health he cannot work properly and is in a continual state of dis-

satisfaction. Therefore it is of manifest advantage to the employer of labor and of the government of a country to put forth every effort to maintain the health of the worker at a high standard. As a matter of fact, the prosperity of a country and, of course, of the employer hinges upon this point. This aspect of the question is beginning to be realized in Great Britain, and large employers, or at least some of the more far seeing, are endeavoring to keep their employees in good health and in a contented frame of mind, by not only having their factories and workshops in a good sanitary and hygienic condition, but by providing mental pabulum and distraction to obviate, to some extent, the deadly monotony of many kinds of toil, which kill the spirit and deaden the mind and react injuriously upon the physical powers. But enough is not done in this direction in this country, which lags far behind America in this respect. The medical correspondent of the London *Times*, who is deeply interested in preventive medicine and particularly so from the industrial standpoint, frequently writes illuminating articles on the subject. For example, in the *Times*, January 25, last he compares the care taken in America to conserve and maintain at a high stage of efficiency the human machinery with the lethargy displayed in this country in grappling with the same problem. He points out that it is recognized on your side of the Atlantic that unless and until industry tackles and solves the human problem there can be no peace within its ranks. He further directs attention to the fact that there are hundreds of agencies, state, municipal, industrial and private, which are now laboring on this problem. Perhaps the most important of these agencies are those concerned with education and vocational selection. In order to succeed in any line of endeavor an individual must like the work or he will not possess that zest which is essential for success. Moreover, he or she must be physically fitted for the work. These points were insisted upon by Sir Kenneth Goadby in an article some few months ago, who suggested that certain tests should be applied ere a vocation was chosen. Those who perform work for which they are not adapted do not give profitable service, and are a source of discontent and unrest to themselves and others. The writer of "At the Periphery" in the *Medical Press and Circular*, January 25, 1922, remarks that "Failure in life naturally begets discontent, and this again leads the individual to suppose that there must be something seriously wrong, not with himself but with things in general, so he sets out to put them right." And thus the agitator is made and more workers are unsettled and more discontent reigns. The aim of vocational selection is to find out a boy's or girl's aptitude at the earliest hour, to develop it and use it. The *Times'* medical correspondent points out that the appearance in an industry of men and women having what amounts to a vocation for that industry is recognized as a tremendous step in the direction away from distrust, discontent, and unhappiness. It tends to make a trade a profession, and thus to imbue those carrying it on with the professional spirit. Another phase of the problem showing the tendency of the age is the relation of psychology to employment. Psychology is rapidly coming into its own and the connection of psychopathy with employment is more intimate by far than is generally supposed. Monotonous work breeds mental sickness which must be fought with the proper weapons. However, enough has been said on this fascinating question, and it only remains to reiterate the statement made by the medical correspondent of the *Times* that industry in America can teach British industry a useful lesson in this respect.

Post-Graduate Lectures.—A course of post-graduate lectures is being delivered at the hospital for sick children, Great Ormond Street, London, W.C., this session on Thursdays at 4 P. M. and are free to medical practitioners on February 2. Dr. R. S. Frew will take as his subject "Pain in Infancy." Subsequent lectures will be announced in succeeding letters.

Infants' Hospital, Vincent Square, London.—A course of six lectures on the physiology and pathology of ante-natal and early post-natal life will be given by Dr. W. M. Feldman in the lecture theatre of the infants' hospital in Vincent Square, London on Thursdays at 4 P. M., beginning on Feb. 2. The first lecture will deal with Fetal and Infantile Mortality and the Peculiarities of Child Life. On Feb. 9 the subject will be Embryonic Physiology and Pathology; on Feb. 16, Fetal Physiology and Fetal Nutrition; on Feb. 23, the Physiology and Pathology of the New-Born, Initial Loss of Weight and Icterus Neonatorum. The two lectures on March 2 and 9 will be devoted to the Physiology of the Infant. The lectures will be illustrated and the practical significance of the various points will be pointed out and discussed.

Post-Graduate Courses at the University of Birmingham.—A course of post-graduate clinical demonstrations has been arranged for Tuesday, Wednesday, and Friday afternoons during the next two months. In the report of the University Council to be presented at the annual meeting of the Court of Governors, the great need for additional accommodation for laboratories, lecture theatres, and classrooms for the faculty of medicine and arts is pointed out. The number of medical students for the session 1920-21 was 259, as compared with 227 for the previous session, 123 in 1918-19, and 89 in 1917-18.

St. Andrew's Institute for Clinical Research.—A post-graduate course for general practitioners under the direction of Sir James Mackenzie will begin on May 3 and will extend over three weeks. The course will consist of lecture demonstrations dealing with the symptomatology of disease in its early stages, and will be supplemented by demonstrations on matters of clinical interest in anatomy, physiology, chemistry, bacteriology, ophthalmology, and radiology. The fee for the course is £10 10s.

It will be gathered from the above announcements that arrangements for post-graduate medical instruction are being made in London and the provincial medical schools and hospitals of Great Britain. The Fellowship of Medicine and Post-Graduate Association of London will issue shortly a full syllabus of the arrangements made in the metropolis for the behoof of those who desire to study British methods and perhaps especially clinical methods in the largest city of the world.

Presentation to Sir Patrick Manson.—No name is better known throughout the medical world than that of Sir Patrick Manson, F.R.S., who was a pioneer and the moving spirit of tropical medical research and investigation. It may be recalled to the minds of those interested in this form of research that it was Manson who suggested to Sir Ronald Ross to look for the mosquito as the predominating factor in the spread of malaria. Manson's name will go down to posterity linked with that of Ross as the discoverer of the main means of the dissemination of, on the whole, the disease most injurious to the human race. But not only did Manson point the way to the eradication, at any rate, to the lessening of this most deadly and enervating disease, but he was instrumental in blazing the trail along the untrodden path leading to the unveiling of the mystery of many obscure diseases of the tropics. Manson is distinctly a, if not the, pioneer in the parasitic field of research of investigation. He may be aptly termed the grand old man of tropical medicine. On Jan. 20, last, at the London School of Tropical Medicine, Sir Patrick was present at the unveiling of the portrait by Sir James Michelli, C.M.G. The portrait had been subscribed for by a number of Sir Patrick Manson's friends both at home and abroad and by past and present members of the school. A fund has also been established, in the hands of a committee over which Sir William Leishman, F.R.S., presides, for the institution of a medal to be awarded annually for clinical research and to be known as the Manson Medal. The ceremony took place in the entrance hall of the school, Prof. A. Alcock, F.R.S., briefly indicating the objects of the memorial fund. Sir James Michelli, in unveiling the portrait, referred to the long and intimate association with Sir Patrick Manson, to the history of the foundation of the school and the struggles of its earlier days. Sir Patrick, who was received with the greatest enthusiasm, responded briefly. He said, in part, that he looked forward to the time when thousands of medical men would flock to the school; the success it had attained in its comparatively short career had been remarkable and he believed in the future it would be even greater.

Obituary.—Sir John Kirk, the friend of Livingstone, has just died at the age of ninety. Kirk was the eldest son of the Rev. John Kirk of Arbirlot, Forfarshire, studied medicine at Edinburgh University, where he was graduated M.D. in 1854. After serving in the Crimean War, he was appointed naturalist and medical officer to the expedition which Livingstone was organizing. The remainder of Sir John Kirk's services were mostly employed in discharging duties of a political nature at Zanzibar, where in 1875 he was appointed consul-general. He retired in 1887, but continued to be employed by the Government, chiefly in an advisory capacity, for some years afterward. He was made LL.D. of Edinburgh University, D.C.L. of Oxford University, D.Sc. of Cambridge University. He also received the Fellowship of the Royal Society. He was appointed in 1881 K.C.M.G., in 1886 G.C.M.G., and K.C.B. in 1890. He was awarded the Patron's Medal of the Royal Geographical Society in 1882.

Progress of Medical Science.

Boston Medical and Surgical Journal.

February 9, 1922, clxxxvi, 6.

1. A Reconsideration of the Dyspepsias. Francis W. Palfrey.
2. Aeration of the Posterior Sinuses in Acute Optic Neuritis. Leon E. White.
3. Perforated Gastroduodenal Ulcers. Some Notes as to Their Treatment. James J. Hepburn.
4. Stiff Fingers. Fred J. Cotton and Edward J. Sawyer.
5. The Aid Which the State Offers in Control of Tuberculosis Through Sanatoria and Consultation Clinics. Eugene R. Kelley.

1. A Reconsideration of Dyspepsias.—Francis W. Palfrey finds in the usual symptoms of dyspepsia suggestions of abnormalities of function which enable him to recognize three groups of cases and which give hints as to their treatment. One such group is that characterized by epigastric pressure and difficult belching. This he attributes to a valvelike closure of the cardiac orifice and designates as "valvular cardia." Minor cases of this condition are fairly common and may be little inconvenienced unless other disease is present. As for treatment, if the valvular action of the cardiac orifice is due to organic relations of the liver, the left crus of the diaphragm, and the last portion of the esophagus, we have at present no way of correcting it. If, on the other hand, kinking by pressure of a distended fundus is to blame, there is some hope of improving matters by avoiding such distention. To this end it is reasonable to give a diet which obviates the need of belching, and this diet fortunately is the same diet which tends to least distention of the fundus. For a second group of cases that are apt to have a sense of weight or dragging in the epigastrium, anorexia, vomiting of undigested food, general debility, ptosis and poor muscular development the term "gastric asthenia" is suggested, since the term gastric neurosis has been so loosely used in the past as to have lost its proper meaning and to include all dyspepsias without organic disease. These cases are often difficult to improve. The diet should be a general one, such as would be allowed a healthy older child. Bitter tonics before meals and dilute hydrochloric acid after meals may be of service, but more is to be expected from improvement of environment, habits, mental attitude, diet and general physical condition. As a third group the writer classes together what he considers cases of gastric irritation, under three subheads: catarrhal, toxic, and hyperacid. By far the most important of these is the group complaining of sour stomach and heartburn where the condition seems to be one of irritation of the stomach by pepsin-hydrochloric acid developed within. Here the question is brought up as to why these acid contents remain in the stomach instead of passing on and whether the abnormally long contact of this digesting fluid with the mucous membrane may not be the cause of gastric ulcer, and, further, whether the failure of ulcers to heal may not be due to their being daily eroded by this fluid. Such considerations suggest an abnormal mechanism of the pylorus. One signal for opening of the pylorus is free hydrochloric acid on the gastric side. In these cases of hyperacidity this requirement is obviously met. But the second requisite is the neutralization of acid on the duodenal side. The fault probably lies here. Patients belonging to this group are frequently benefited by bile or bile salts when given in coating, which will not be dissolved in the stomach.

4. Stiff Fingers.—Fred J. Cotton and Edward J. Sawyer assert that concerning stiff fingers in their various sorts, which are much commoner than they should be, we have no very definite scheme of attack. After trauma as in Colles' fracture; after metacarpal or phalangeal injuries; after infections; after acute rheumatism. or a subacute attack in hand or wrist; after all these conditions and other odd calamities one meets with stiff fingers. Twenty-four hour traction, by miniature winches or by pull of elastic bands, traction exerted in the line of deformity to produce a distraction of joint surfaces, with very gradual change of the line of pull toward flexion or toward extension as the case demands, will so supplement ordinary physiotherapy methods, or so displace them, that stiff hands and fingers may possibly come to be rare.

Journal of the American Medical Association.

February 11, 1922, lxxviii, 6.

1. Value of Pneumoperitoneal Roentgenology in Obstetrics and Gynecology, Based on an Experience of more than Three Hundred Cases. Reuben Peterson.
2. Tuberculous Empyema. Lewis H. McKinnie.
3. Chemotherapeutic Considerations of Pentavalent and Trivalent Arsenic. Jay Frank Schamberg, George W. Raiziss and John A. Kolmer.
4. Individual Variations as Influencing Reyfuss Fractional Method of Gastric Analysis: Preliminary Investigation. Nicholas Kopeloff.
5. Epidemic (Lethargic) Encephalitis: A Personl Experience. Anonymous.
6. Hereditary Hypertension and Arteriosclerosis. Joseph R. Wiseman.
7. Differential Centrifugalization: A Method for the Study of Filterable Viruses, as Applied to Vaccinia. W. G. McCallum, Ella Hutzler Oppenheimer.
8. Familial Bladder Atony. F. F. Gundrum.
9. Surgical Treatment of Extensive Basal Cell Carcinoma. J. Shelton Horsley.
10. A Sacral Teratoma Containing an Embryonic Scapula. Albert H. Montgomery.
11. The Treatment of Structural Scoliosis at the Massachusetts General Hospital. Armin Klein.
12. Treatment of Fractures of the Metacarpals and Phalanges of the Fingers. Ralph H. Wheeler.

2. Tuberculous Empyema.—Lewis H. McKinnie cites a number of case histories to emphasize the following facts: (1) Open drainage in tuberculous empyema is an unsatisfactory and often a disastrous procedure when the end results are considered. (2) The presence of other organisms in the pleural pus besides the tubercle bacillus—mixed infections——can be successfully treated by aspiration and replacement by air, which is contrary to the usual teaching. (3) The tuberculous base of empyema is often overlooked. The greatest care should always be used to exclude tuberculosis before instituting open drainage. During the last few years McKinnie has observed twenty-eight cases of tuberculous empyema with mixed infection. Eight of these were treated by aspiration and twenty by open drainage. He treated all the aspiration cases, but did not see the open drainage cases until operation had been performed. Only those cases in which there was persistent bronchial fistula were opened. Of the patients treated by open drainage, nine are dead, only one being considered at all well; all the other must be classed as chronic invalids. Of the eight patients treated by aspiration, one is dead; all the others are working and in good health.

3. Chemotherapeutic Considerations of Pentavalent and Trivalent Arsenic.—Jay Frank Schamberg, George W. Raiziss, and John A. Kolmer relate the detail of this study from which they draw the following conclusions: (1) Arsenic in inorganic compounds is highly organotropic and devoid of destructive effect on trypanosomes and spirochetes. (2) When linked to carbon in organic compounds it may acquire a destructive influence on the parasite. (3) Organic arsenicals are generally less toxic than inorganic. Those containing pentavalent arsenic are no more toxic than the trivalent. The least toxic of the trivalent compounds are those which contain the so-called arseno group. Compounds of the arsenoxid and arsin type are considerably more toxic than of the arseno type. (4) The effect on trypanosomes and spirochetes appears to depend in considarable measure on the valence of the arsenic. Trivalent carbon-linked arsenic is a much more powerful trypanocide than pentavalent. The arsin type is more trypanocidal than any other type or organic trivalent arsenical, although arsenoxid also exhibits a high value in this respect. (5) The nitrohydroxyphenolarsonic acid possesses no trypanocidal effect, but when the nitro group is converted into an amino radical a striking change is immediately observed. (6) The arseno compounds, arsphenamine and neoarsphenamine, give distinctly the best therapeutic indices of the entire series, and in this respect neoarsphenamine is superior to arsphenamine.

4. Individual Variations as Influencing Rehfuss Fractional Method of Gastric Analysis.—Nicholas Kopeloff, in a preliminary communication, reports observations made on a group of twenty patients belonging to the so-called functional psychoses, twelve having been diagnosed as dementia precox, eight manic depressive insanity, and one depression. Repeated analyses were made on one individual within a short period of time—while the physical and mental condition remained practically unchanged—yielded different curves. These curves from the same individual varied as much from one another as the differences between the curves of different individuals. Variation in the total amount of fasting contents from the same individual is often greater than between different individuals. There is an imperfect correlation between the measurement of gastric acidity by the titration method and hydrogen ion concentration determinations. The latter yields more important information regarding true acidity. This agrees with the work of Shohl. Similar results were obtained when repeated analyses were made on healthy normal individuals showing no gastric symptoms. In only half the instances was there any correlation between the high gastric acidity and low bacterial count. This indicates that another unknown factor is in operation. It is suggested that the bacterial content of the stomach depends on the swallowing of saliva. Bacterial counts, reaction of saliva, and observation of amounts swallowed substantiate this, as well as removal of saliva during the analysis. There was little difference in the gastric acidity in the patients diagnosed as having dementia precox and manic depressive insanity. This investigation indicates that single determinations of gastric acidity by the Rehfuss method are not sufficient on which to base conclusions, because they do not take into consideration individual variation.

8. Familial Bladder Atony.—F. F. Gundrum calls attention to a condition of bladder atony with retention, dribbling and varying amounts of residual urine in which no obstruction exists and no spinal cord disease can be found. Walker, in 1912, reported a series of twelve such cases and offered as explanation a lesion in the hypogastric or hemorrhoidal plexus, producing either detrusor weakness or sphincter hypertonicity. Other authors have reported individual instances of this condition, but so far as the writer can ascertain the occurrence of several individuals with bladder atony of this type in one family seems not to have been reported. He describes a family group in which bladder trouble is considered, by the male members at least, a common heritage. A patient with this condition volunteered the information that his two younger brothers were both using catheters under the advice of a urologist, and also that his father had a similar difficulty. Such family data as could be gathered showed that in three generations there were five who almost surely, and four more who probably, belonged in this group described by Walker.

The Lancet.

January 21, 1922, ccii, 5134.

1. A Glimpse into the History of the Surgery of the Brain. Charles Ballance.
2. Some Relations Between Vegetable and Human Pathology. E. J. Butler.
3. Influenza: Treatment by Direct Stimulation of Leucopolesis. Graham Willmore and F. M. Gardner-Medwin.
4. The Sigma Reaction for Syphilis. A Comparison with the Wasserman Reaction. A. F. Rook.
5. Bilious Attacks and Epilepsy. C. Wilfred Vining.
6. Researches on the Cinchona Alkaloids. Hugh W. Acton.
7. A Case of Lateral Sinus Thrombosis. Leslie B. C. Trotter.

3. Influenza: Treatment by Direct Stimulation of Leucopoiesis.—Graham Willmore and F. M. Gardner-Medwin describe a summer and a winter type of influenza seen in Egypt in 1918 and the early weeks of 1919, the former strongly resembling sandfly fever. Three considerations seemed to indicate a line of treatment. These were the possibility that such organisms as Pfeiffer's bacillus and the strepto-diplococcus were both secondary infections, grafted on a soil previously prepared for their advent by the same resistance-lowering virus which may be the cause of the disease; the marked leucopenia invariably found to correspond with the clinical severity of the early uncomplicated cases, and the clinical aspects of many of the severer cases suggesting a profound toxemia out of all proportion to the lesions found at autopsy in the lungs. Logical treatment was therefore twofold: (1) To stimulate the production of leucocytes directly by means of injections hypodermically or intramuscularly of sodium nucleinate; and (2) to neutralize the poison already circulating in the tissues (and presumably causing the leucopoietic paralysis among other toxic effects), by large doses of alkalies (sodium bicarbonate, 1 dram, four-

hourly), and by giving as much glucose in the food as the patients would take. In the worst cases glucose was given also per rectum, subcutaneously, or intravenously, in a 3 per cent. solution, combined with sodium bicarbonate 2 per cent. Free purgation with calomel and salines, cardiac stimulants hypodermically (such as camphor in oil and caffeine in solution of sodium benzoate as required), and a mixture containing potassium iodide and creosote in cases in which there was much mucopurulent expectoration, were concomitants in the treatment. The diet consisted of milk and glucose, and dilute albumin-lemon-glucose-barley water, of which the patients were encouraged to drink as freely as ever they could. In nearly all cases improvement of the patient's general condition followed the injection of the nuclein so rapidly and strikingly that the conclusion was forced upon one that the crisis was actually precipitated by it, and was independent of the day of the disease; it usually occurred forty-eight hours after the first injection.

5. Bilious Attacks and Epilepsy.—C. Wilfred Vining presents evidence with a view to emphasizing the possibility of the "bilious attack" and other morbid phenomena occurring in the child and adolescent being in some cases an expression of the potentially epileptic nervous system. The secret of the prevention of epilepsy probably lies in the patient's preceding generation or generations, and to attempt its prevention in the child is at least more satisfactory than to attempt to produce a cure when epilepsy has fully developed. The recognition, therefore, of the possible relationship of these phenomena to the epileptic state and their active and prolonged treatment, together with suitable control of the child's life, may go a long way in the prevention of the development of the convulsive habit.

6. Researches on the Cinchona Alkaloids.—Hugh W. Acton states that quinine is generally regarded as a methoxy derivative of cinchonine, but since quinine is levorotatory and cinchonine dextrorotatory in their optical activity, it seems probable that quinine is not derived from cinchonine. Of the fourteen alkaloids which have been isolated from the various species of cinchona, the two series of crystallizable cinchona alkaloids, namely, the natural and the hydro-alkaloids, responsible for the curative action of cinchona bark in malarial fevers, have been investigated by the writer. With reference to the toxicity of the cinchona alkaloids, he concludes as follows: (1) The toxicity of the cinchona alkaloids on paramecium varies with the concentration of the culture. They are much more toxic in alkaline than in acid cultures. (2) With the exception of cinchonine, the detrorotatory alkaloids in alkaline culture are more toxic than the "cinchonidine series." (3) The toxicity increases with the higher members of the series. (4) The hydro-alkaloids are slightly less toxic than their corresponding neutral alkaloids. The investigation of the cinchonine derivatives, *i. e.* from hydrocupreidine, offers great possibilities as regards their action on bacteria and protozoa, as they are distinctly more toxic to mice and paramecium than the cupreine series. The cinchonine series have a greater inhibitory action on the digestive enzymes than the cinchonidine series. The inhibition is most with trypsin, less with pepsin, and feeble with erepsin. If these alkaloids were given half an hour after a meal they would not interfere with ptyalin digestion. The stronger the concentration the greater the inhibition produced by these alkaloids. Therefore, unnecessarily large doses should be avoided, and the alkaloid should be given well diluted. The inhibition is less when the ferment is first allowed to attack the protein than when the protein is first impregnated with the alkaloids. Therefore, these alkaloids should always be given after a meal. The mono-salts—that is, the commercial sulphates—should always be given with acids, as they use up free hydrochloric acid in the stomach, and thus further inhibit peptic digestion. In pill form, the bihydrochloride or bisulphate should always be employed. Any inhibition occurring in peptic digestion leads to a deficiency in the formation of peptones. Therefore, the alkaloids should be given at the end of the peptic digestion, *i e.* half an hour to two hours after a meal. These alkaloids increase the amplitude and slow the rhythm of intestinal muscle. The diarrhea observed is probably due to an interference with digestion, both in the stomach and intestines, and not to its action on intestinal muscle. When strong solutions of acid salts of quinine are injected deep into the tissues of the body, the following local effects are produced: (1) An escharotic mass at the site of the injection due to the necrosis caused by the strong acid solution and the quinine being precipitated a white flocculent precipitate of base. (2) A negative chemotaxis of leucocytes occurs as long as the alkaloids remain at the site of the inoculation and are not absorbed. (3) The cinchonine series, so far tested, are less anesthetic on rabbit's cornea than the cinchonidine series. The cinchonine series are more powerful in their effects on blood pressure and uterine muscle than the levorotatory alkaloids of the cinchonidine series.

British Medical Journal.

January 21, 1922. ii, 3186

1. The Position of the Thyroid Gland in the Endocrine System. W. Langdon Brown.
2. Rheumatoid Arthritis Due to Infection of the Nasal Accessory Sinus. P. Watson-Williams.
3. A Case of Diaphragmatic Hernia. George J. Langley.
4. Hereditary Polydactylism. Roy F. Young.
5. The Carelli Method of Perirenal Inflation. F. Hernaman-Johnson.
6. Deep X-Ray Therapy in Malignant Disease: Notes on a Visit to Erlangen. J. Curtis Webb.
7. Case of Trypanosomiasis from Portugese East Africa Apparently Cured. George C. Low and H. B. G. Newham.
8. The Significance and Treatment of Some Abnormalities of the Urine in Children. A. Dingwall-Fordyce.
9. Blood Pressure Observations in Functional Bruits in Children and Young Adults. A. F. Martin.
10. A Clinical Test for the Presence of Cellular Elements in the Urine. T. H. C. Benians.
11. Fracture of the End Phlanx of a Finger, with Rupture of the Common Extensor Tendon. John N. Laird.
12. Torn Splenic Artery—Splenectomy. J. A. Reed.
13. An Operation for the Relief of Ascites following Cirrhosis of the Liver. James L. Bocarro.
14. The Classification of Squint. A Freeland Fergus.

1. The Position of the Thyroid Gland in the Endocrine System.—W. Langdon Brown characterizes endocrinology as the missing link between biology and psychology, which has profoundly modified our conception of disease. The position which he assigns to the thyroid gland in the endocrine system is that of a powerful activator of metabolism. In this respect it cooperates with the adrenals and pituitary, and antagonizes the pancreas and parathyroids. On the nervous side it cooperates with the sympathetic nervous system, being both stimulated to increased activity by it and lowering the threshold to it. In this way it plays an important part both in external and internal defense. Externally it leads to greater manifestations of energy in the direction of fight or flight; internally it quickens the reactions to bacterial invasion. An important way in which it accomplishes this is by mobilizing the blood sugar. This increased supply of sugar may either be used for muscular energy in external defense or for heat in the febrile reaction of internal defense. As a provision against waste of this sugar the kidney threshold is raised to prevent its escape into the urine, so that despite hyperglycemia there may be no glycosuria. Yet this blood sugar may exceed this raised threshold, so that some escapes. This is particularly likely to occur during emotional excitement, when the gland is apt to enlarge. It interacts also with the gonads, and the undoubted fact that it plays a more active part in female metabolism may be due to its origin from the uterus of a Palaeostracan ancestor. This interaction may account for the disturbances which are apt to occur in the gland after an artificial or natural climacteric. That in the former instance this is likely to take the form of intermittent hyperthyroidism may be due to the gland being still in full activity; in the latter instance hypothyroidism is more common, presumably because the gland is already undergoing retrogression. The combination of a distressing emotion of matrimonial origin with a toxemia of alimentary origin is the most fertile cause of hyperthyroidism. Certain biological considerations are presented to show why this is the case.

5. The Carelli Method of Perirenal Inflation.—F. Hernaman-Johnson states that injection of gas into the peritoneal cavity, while of great value in outlining the

organs within that cavity, does not fully define the outline of the kidney, as that is an extraperitoneal organ. Carelli has therefore resorted to the production of an artificial emphysema around the kidney itself, and has carried out the procedure several hundred times without accident of any kind. The essential points in the technique are: (1) Use of a fine needle; (2) accurate location of the transverse process of the second lumbar vertebra; (3) proper direction of the needle after it has struck the process; (4) use of needle open so long as it is being advanced; this permits observation of punctured blood vessels; (5) sound judgment as to depth of insertion; (6) determination of entrance of needle point into perirenal tissue by manometer readings; (7) slow injection of gas; (8) quantity not to exceed 500 c.c. As to indications for use, any case in which there are signs or symptoms suggestive of kidney trouble, and in which clinical and ordinary radiographic examination does not completely clear up the diagnosis, should be investigated by this method. Alterations in shape, size or density are at once made clear, also calculi too small or faint to show in the usual manner. The procedure makes possible the investigation of alteration in the adrenal body, so that it may be of use in elucidating certain disorders of the ductless glands. As to risks, there may be a theoretical possibility of setting up perirenal cellulitis, but no suggestion of any ill effect has occurred in Dr. Carelli's practice. Hernaman-Johnson says that he has no hesitation in rcommending the procedure as one of very great value.

9. Blood Pressure Observations in Functional Bruits in Children and Young Adults.—A. F. Martin has observed that during convalescence from various mild infections children often go through a period in which they exhibit a sustained rise in blood pressure, the development of a systolic apical bruit presenting the usual functional signs, and accompanied by some cardiac dilatation. The child is far more unstable in its circulatory equilibrium than an adult, and the heart muscle just recovering from the damage of a pyrexia is in no case able to sustain the increased work that a slight hyperpiesis involves. Children are very susceptible to the action of the nitrites. The writer uses them in the following combination in reducing blood pressure in his cases: Sodium nitrite, liquor trinitrini, and spirits etheris nitrosi in suitable dosage. In adults these are of no use. Regular blood pressure observations should be taken in all cases of "impure" heart sounds after fever. The explanation of these cases is difficult. Three factors at least must be considered, namely, the patient's temperament (it is particularly the "nervy" children who suffer this disability), secondly, the action of the toxin upon the arteries, and finally some fault in the endocrine system.

10. A Clinical Test for the Presence of Cellular Elements in the Urine.—T. H. C. Benians describes a simprocedure which shows with a very small percentage of error whether abnormal bodies are or are not present, and whether or not further investigation is needed. The test, however, does not differentiate between one form of cellular element and another. The technique is as follows: If the urine is strongly acid or alkaline to litmus it should first be neutralized by the addition of a few drops of alkali or acid. Take a third of a test tube of urine and add a quarter of the amount of 20 volumes of fresh peroxide to it. Allow the tube to stand in the rack, but not in the sunlight. In a strongly positive reaction bubbles start to rise immediately and form a permanent layer of foam at the top of the fluid. If the reaction is only faintly positive bubbles will rise gradually and form a thin layer on the top; this may take from fifteen to twenty minutes or longer if the urine is acid.

Western Medical Times.

November, 1921, xli, 5.

1. Suppurative Ringworm. Douglas W. Montgomery and George D. Culver.
2. Chronic Ulcer of the Stomach as a Precursor in Gastric Carcinoma. Joseph Katz.
3. The Phosphatic Index as an Aid in Diagnosis. J. Henry Dowd.
4. Relation of Gastric Sensibility to the Diagnosis and Treatment of Gastric and Duodenal Ulcer. W. H. Foreman.
5. Cecal Constipation. Richard J. Behan.
6. Radium—A New Element in the Safety Movement. Arthur Roeder.
7. Elastic Stocking in Varicose Veins. Joseph Van Becleare.

1. Suppurative Ringworm.—Douglas W. Montgomery and George D. Culver point out that there are a number of fungi which give rise to the affections known under the common term of ringworm. Some ringworm infections cause very strong circumscribed reactions with a mimicry of much graver maladies than the ordinary types of ringworm. These are called the suppurative ringworms, or kerions, or kerion Clesi. Many of the trichophyta cause this type of ringworm. It is not due to any particular strain, of which there are many, but it occurs more frequently when the infection is caught from one of the lower animals. The infection spreads from a center so as to form a circular elevated tumor with a flattened, irregular surface and a rounded, cushion-like, fleshy border, constricted at the base. French dermatologists very aptly call the tumor a macaroon, from its resemblance to the familiar almond paste, after-dinner cake. A kerion may be mistaken for an ordinary pyodermia and may be incised to evacuate pus. Such an incision is valueless, as the pus is being evacuated through the follicular openings, and incision neither facilitates nor hastens this. On the contrary, it may do harm by allowing the accompanying pyogenic infection to spread to the deeper tissues. Another diagnostic danger lies in mistaking the tumor for a carbuncle. It lacks the deep burrowing and the large slough of a carbuncle. In this type of ringworm neither x-ray nor radium should be employed, as is so frequently done in ordinary ringworm of the scalp, because the increased intensity of the follicular inflammation increases the danger of consequent permanent baldness. The treatment that has been found most effective is a thorough poulticing for at least an hour each day with boric acid starch poultice, and the application of a salicylic acid and sulphur ointment (2 per cent. of salicylic acid and 10 per cent. of precipitated sulphur). The usual situations for these suppurative trichophytic tumors, Motgomery and Culver point out, are the scalp, the wrists, the hands, and the bearded face.

Indianapolis Medical Journal.

November, 1921, xxiv, 11.

1. The Care of Undernourished Children as Followed by Dr. Clemens Pirquet in Vienna, Austria. Betty Blythe.
2. The Re-education of the Incapacitated Soldier. C. C. Graves.
3. "Mamma's Affair." Curran Pope.
4. Athletic Mothers. Casper L. Redfield.
5. The Pulse of the Nervous System. J. Henry Dowd.

5. The Pulse of the Nervous System.—J. Henry Dowd holds that the phosphatic index of the urine offers a ready means of determining the nutritional condition of the nerve cell. When nerve cell nutrition phosphorus, nuclein, and lecithin have performed their function, the waste is eliminated in their urine as phosphates, or end products. An estimation of the alkaline phosphates is a far more simple procedure than is a blood count in an examination for anemia. In making the test the second urine in the morning should be used. When the precipitate falls to NP (not easily disturbed on agitation) on the phosphatometer, no matter what may be the condition under treatment, the nervous system, *per se*, is not a factor in the case. A precipitate that remains above NP at the end of ten minutes indicates irritation, or hypersensibilty of the neurones; the reserve is being drawn upon. Such a condition may be found as a beginning of practically every case that ends in what is termed neurasthenia; it is practically always found plus in high blood pressure. Where the precipitate will not sink and is light and fluffy, or goes below NP, nerve cell nutrition is deficient, and no matter what the case may be, medical or surgical, resolution will be delayed and symptoms continue until the deficiency is supplied, either naturally or by artificial administration. In the functional conditions, one's first thought should be the condition of the nerve cell nutrition in every case which does not quickly respond to old and well tried methods of treatment. The phosphatic index is not a panacea but it often gives more information than any other test we have.

Book Reviews.

DIABETES MELLITUS. A System of Diets. By HERMAN O. MOSENTHAL, M.D. Assistant Professor of Medicine and Attending Physician, N. Y. Post Graduate Hospital and Medical School. Price $1.50, with set of pads, $6.50. New York: Paul B. Hoeber, 1921.

THIS work is designed to remove many doubts and perplexities in the mind of the person responsible for the preparation of the food of a diabetic member of the family. The restrictions in the diet are so many that the result is often a tiresome monotony that revolts and sickens the patient. A study of Dr. Mosenthal's system and a glance over the diet lists will, however, show that, even with strict carbohydrate exclusion, there is a variety of other foods, by a judicious playing upon which dietary monotony may be easily avoided. The following are the diet tables for the carrying out of which the printed sheets of directions are available: Starch-free diet, qualitative list; Minimal fat, starch-free, measured diet; Minimal fat, starch-free, weighed diet; Low fat, starch-free, measured diet; Low fat, starch-free, weighed diet; Accessory diet, rich in carbohydrates. The sheets containing directions for these several diets are bound in pads of fifty each.

MOUTH HYGIENE. A Text-Book for Dental Hygienists. Compiled and Edited by ALFRED C. FONES, D.D.S., Bridgeport, Conn. Second Edition. Thoroughly Revised. With 218 Illustrations and 8 Plates. Price $5. Philadelphia and New York: Lea & Febiger, 1921.

THE dental hygienist is a modern product created to meet a very real need in the prophylaxis of mouth diseases and their frequent sequelæ, constitutional diseases, sometimes even fatal. The teaching of mouth hygiene being thus a new profession, there are comparatively few text-books available for its study. Such being the case, it is fortunate that such books as these are, the one before us being one of the best, are so practical and so good. This book, though not of large size, is of the nature of a "system," the various chapters being the work of nine contributors. These chapters are entitled, Anatomy of the Head; Histology of the Teeth and Associated Structures; The Teeth as a Masticating Machine; Malocclusion of the Teeth; Inflammation; Deposits and Accretions Upon the Teeth; Pyorrhea Alveolaris; Dental Caries; Odontalgia and Neuralgia; The Relation of Oral Infections to General Health; Dental Prophylaxis. An Appendix deals with the field of service of the dental hygienist in institutional and private practice and the public schools, and a proposed curriculum for the training of the student. The dental hygienist, whether student or graduate, should read and study this work from cover to cover, and doing so, she will find her time has not been wasted.

THE SCIENCE OF OURSELVES (A Sequel to the "Descent of Man"). By SIR BAMPFYLDE FULLER, K.C.S.I., C.I.E. Author of "Studies of Indian Life and Sentiment," "The Empire of India," "Life and Human Nature," and other works. New York: Oxford University Press, American Branch, 1921.

FOR those who have a deep interest in speculative introspection and minds well trained to understand thoroughly such study, this volume will hold much that will aid in further speculation. The race and individual onpush motivate the book. Fortunately the writer has given a definite synopsis of his material at the end of each chapter, so that it is not necessary to reread an entire chapter for a wanted point or argument.

The book opens with the discussion of the planes of nervous activity, then takes up the physical plane; evolution of concepts; perception and thought; expectative and explorative thought; appreciative and imaginative thought; thought and muscular movement; the appetites, emotions, and will; fear, courage, and anger; the affections; evolutions of pleasures and displeasures. Various types of behavior are gone into as well as speech and writing, and character and education.

In the epilogue the author says: "The views to which these inquiries have led us are disillusioning—lamentably disillusioning, many will say—and, were it clear that mankind lived happily in the shadow of se ignorance, one might shrink from piercing the canopy and leading in the sunlight. . . . All said then, it can not be claimed that illusion is successful; and there a case for bringing the mainsprings of our behavio under the light."

PROSTHETIC DENTISTRY. A Text-Book on the Chair side Work for Producing Plate Dentures. By DOUG LAS GABELL, L.R.C.P., M.R.C.S., L.D.S., Dental Sur geon to the Royal Dental and Charing Cross Hospi tal, Lecturer on Dental Mechanics to the University of London at the Royal Dental Hospital. New York Oxford University Press. American Branch, 1921.

THIS is an excellent guide to what may be called th lighter mechanics of dental prosthetics, that is to say with the fitting of ordinary dentures—the chair-sid work as distinguished from the laboratory work. Th subjects treated of are: Indication for and against plates and bridges; preparation of the mouth; impres sion and casts; taking the bite; selection of teeth, move ments of jaw, setting up of teeth; strength and rigidity of dentures; retention of dentures; trying in the den tures; putting in the dentures; complaints of patients refits, additions, and repairs. The book is elementary in character as regards the explicit details and direc tions in respect of every part of the work to be done and as such will be of great service to the advanced student or young graduate; but it is not at all ele mentary in regard to the subjects treated, for every problem that may confront one at chair-side is met and solved. The chapter on Complaints is especially valu able and one should master it for no matter how good a mechanic he may be every maker and fitter of den tures will now or again make a mistake, or if he does not he will have patients who will think he has.

LEHRBUCH DER LUNGENKRANKHEITEN. By Dr. ADOL BACMEISTER, Professor für innere Medizin, Freibur University, Phys. in Chief Sanatorium St. Blasien Second Edition. Price 126 Marks. Leipzig: Geor Thieme, 1921.

THIS is the second edition of what seems to be a rathe popular book in Germany. The first one appeared fiv years ago in the midst of war times and never reache these shores. The first chapter is devoted to th anatomy and physiology of the lungs and of cours does not bring out anything new. The second chapte however, devoted to the examination of the norma lung in the living subject is of interest. Besides th physical examination, the percussion of the norma lung, the auscultation of normal breathing and of th voice, pectoral fremitus, and spirometry, are accurate described. Added to this is the Roentgen picture of th normal lung, anteriorly, posteriorly, and laterally. Th study of this chapter is particularly important in or der to enable one to understand the abnormal conditio which the physical examination of the Roentgen pic tures reveal. He entitles the chapter treating with th diseased lung "Typical Changes Resulting from Pathological Invasions." He very carefully describe the physical signs and particularly the adventitiou signs perceived in the affected lung. In subsequen chapters where he speaks of symptoms, dyspnea, an changes in the respiratory movements, he distinguishe between various forms of dyspnea but seems to hav overlooked the fact that dyspnea may also be due t idiosyncrasies for certain foods. The subsequent chap ters deal with tracheitis, bronchitis, and broncho pneumonia, bronchiectasis, and emphysema. There i nothing new in these chapters, but the chapter or stenosis of the trachea and bronchi, and foreign bodie in the bronchial tree deserves careful perusal becaus of the admirable description of the conditions which arise from trauma or pathological processes. In th description of the various types of pneumonia the studies of Cole and his pupils of the Rockefeller In stitute and the antipneumococcic serum receive n mention whatsoever. The final chapters deal with syphilis of the lungs and the parasites which may be found in the lungs. Under the chapter of clinical tuberculosis he describes the various types, and under treatment he advises the modern hygienic, dietetic, and institutional methods so well known. The last chapter treats of diseases of the pleura. As a whole the book is worth the perusal of the student of tuberculosis.

Society Reports.

SOUTHERN SURGICAL ASSOCIATION.

Thirty-fourth Annual Session, Held at Pinehurst, N. C., December 13, 14 and 15, 1921.

THE PRESIDENT, DR. RANDOLPH WINSLOW OF BALTIMORE, IN THE CHAIR.

Traumatic Intracranial Hemorrhage.—Dr. WILLIAM PERRIN NICOLSON of Atlanta said that in all cases of traumatism to the head with or without fracture where a patient recovered consciousness and subsequently became unconscious the cause was practically always hemorrhage. Hemorrhage in these cases might be extradural or subdural, the former being more immediate than the latter, occurring sometimes days or weeks after the beginning. Such cases always deserved an exploratory operation and hemorrhages were usually easily found. Such hemorrhages when not relieved resulted in more or less extensive cysts which disabled the patient, and destroyed his usefulness. Exploratory operations upon the brain were no more dangerous than that upon any other part of the body.

Operation for Diaphragmatic Hernia.—Dr. HARVEY B. STONE of Baltimore said that abdominal exploration was essential in the great majority of cases of diaphragmatic hernia. Thoracic approach greatly facilitated the necessary operative steps. The method of choice, therefore, for the routine handling of these cases should be by combined abdominal and thoracic incisions. These incisions were best made separately instead of by the French method of a continuous incision.

Conservative Surgery in Nonmalignant Diseases of the Pelvic Organs.—Dr. E. P. HOGAN of Birmingham, Ala., stated that conservative surgery included a correct diagnosis and such preoperative treatment, Fowler-Ochsner-Murphy treatment, operation, and postoperative treatment as would save life primarily and would restore the patient to health and a normal or as nearly normal existence as possible. Diseases of the female pelvic organs rarely killed immediately. Coincident acute diseases of other origin not infrequently occurred, complicating or overshadowing the pelvic disease. Such cases should be treated primarily for the acute illness. Conservative treatment of acute pelvic infections aided nature to successfully resist the primary infection. Repeated acute or subacute attacks might require an operation for its relief. Such patients should be again conservatively treated before undergoing the operation. Cases requiring drainage were reduced to a minimum. Young women under 35 or 36 years of age operated for a nonmalignant disease of the pelvic organs should have the menstrual and if possible the reproductive function preserved. Radical operation—removal of tubes, ovaries and uterus—might be indicated in older women. Conservative surgery of the female pelvic organs reduced mortality and morbidity and increased the possibility of the preservation of these organs and their function.

The Surgical Treatment of Extensive Basal Cell Carcinoma.—Dr. J. SHELTON HORSLEY of Richmond, Va., said that in extensive basal cell cancers, in addition to cauterization and excision with a cautery, an important principle was to apply as soon as possible to the raw surface from which the cancer was excised, the raw surface of a pedunculated flap transplanted from a distance. It had formerly been thought that plastic operations for defects caused by extirpation of cancer should not be done until it had been determined, after the elapse of months or of years, that there would probably be no recurrence. The idea seemed to have prevailed that it would be useless to transplant a flap when cancer might recur beneath it. With basal cell cancer, however, this practice appeared to be erroneous, and a flap from a distance should be applied as soon as possible after the excision of the cancer, for the flap seemed to add an additional obstacle to the growth of the cancer by interposing its own natural resistance to the cancer cells.

Duodenal Diverticula.—Dr. WILLIAM A. DOWNES of New York stated that the majority of duodenal diverticula did not give rise to symptoms. Retention might occur in those with a narrow neck, and then the condition might become of great clinical importance. These diverticula were formed by the mucosa becoming herniated through the muscular coat of the gut wall and probably resulted from congenital defects. The diagnosis could be made only by the roentgen ray. Invagination or excision of the sac, whenever possible, was indicated in the cases giving symptoms.

Aneurysm of the Internal Carotid Artery.—Dr. NATHAN WINSLOW of Baltimore said the object of his paper was to insure a prompt recognition of this obscure lesion; to assemble all facts pertinent thereto; to render in abstract the cases reported in the literature, and to place on record a case. The first case was reported by Sir Astley Cooper, since then including the case herein reported, the number had risen to 70, 37 during the nineteenth century. Since 1900, 33. Though so seldom seen its chief interest centered in its being mistaken for a tonsillar abscess and lanced with disastrous results. Lee and Duke had reported this accident, the patients dying. Chassaignac fell into the same error, but saved his patient. The diagnosis was mainly between abscess, rarely malignancy. In aneurysm the symptoms were generally quite distinctive. There would be a tumor pushing the lateral pharyngeal wall into and obstructing the food channel. Unless the jaws were fixed the lump was accessible to sight and touch. It might be circumscribed or diffuse and was bulging and pulsatile. To touch it was soft and elastic and pulsated throughout. Externally there might be no evidence of the disease or there might be a puffiness in the neck, occasionally a visible tumor. Upon stethoscoping the lump a bruit was heard. Murmur and pulsation disappeared when the common carotid was compressed to recur immediately the pressure was removed. Dysphagia and dyspnea were not uncommon, likewise buzzing in the ear, persistent hemicrania, vertigo and paralysis of the muscles supplied by the ninth, tenth and twelfth cranial nerves. Diagnosis had been made by needling of the sac, but should only be practiced when the patient was so situated that a prompt operation could be done if rupture occurred through the path of the needle. The operation of choice was ligation of the internal carotid artery between the sac and the bifurcation of the primitive carotid; if this was impossible the ligaturing of both the common and the external carotids in close proximity to the point of division.

A negress. married, aged 48, cook by occupation, had a lump in her throat of nine months duration. It had progressively gotten larger and at the time of operation nearly obliterated her food passage. It was soft and elastic to the touch and pulsatile throughout. With a stethoscope behind the angle of the jaw a bruit was plainly audible. Its size was materially diminished by pressure on the common carotid, which resulted also in disappearance of bruit and pulsation. On February 1, 1921, the primitive carotid artery was tied in the triangle of election and the external carotid in close proximity to the bifurcation. She made an uneventful postoperative recovery, developing no evidence of intracranial mischief. For some months the swelling in the throat persisted, but never pulsated after the ligation. It had now entirely disappeared and, symptomatically at least, the patient was entirely cured.

Of the 70 cases recorded in the literature, 36 were spontaneous, 10 erosive, 13 traumatic and 1 unclassified; 37 were males, 31 females, 2 not stated. Of the spontaneous 26 were females as against 9 males; 1 the sex was not given. Cure was attempted by operation 48 times, with 32 recoveries and 16 deaths; 21 were not operated on, 16 perished, 4 were in the same or worse condition when the report was made, and 1 made a spontaneous recovery. Vander Veer thought he had effected a cure by compression, but the patient suddenly fell dead three months later. McMullen and Stanton attempted restorative endoaneurysmorrhaphy unsuccessfully. LeFort in an arteriovenous aneurysm did a transvenous suturing of the hole in the artery and capped the suture line with a piece of the vein. Bruns, Perthes, Morestin, and Moser practiced extirpation of the sac, and Agnew because of recurrence

of pulsation in the swelling ligated the opposite carotid, but the patient died about a week later of a secondary rupture of the sac. The common carotid alone was ligated 22 times with satisfactory results in 13 instances, the internal alone 4 times with 3 recoveries and 1 death.

Primary Carcinoma of the Female Bladder.—Dr. I. S. STONE of Washington, D. C., reported a case in which early excision of a supposedly malignant bladder tumor, by combined vaginal and abdominal operation, had resulted in an apparent cure.

Dr. G. PAUL LAROQUE of Richmond, Va., reported another case of bullet wound of the femoral artery and vein successfully treated by ligation of the artery and vein and extirpation of the injured segment.

Choice of Operation for Duodenal Ulcer.—Dr. LEGRAND GUERRY of Columbia, S. C., said that operation would hold first place ultimately which, when it had been completed, obeyed most closely the following points: Mechanical rest, physiological rest, altered chemistry which was dependent on the first two points, and a stomach whose position and motility were the least interfered with. We were after increasing the number of complete symptomatic cures from 75 per cent. to 95 per cent., or even more, if possible. To successfully carry out the above principle there was room, and lots of it, for the exercise of the very highest degree of surgical judgment and discrimination in the proper selection of the method to suit the particular case in hand. It was not primarily a question of the mechanical performance of an operation, but a proper understanding of general principles and the surgical philosophy which rested thereon.

A Consideration of Some Nontuberculous Kidney Infections.—Dr. RAYMOND P. SULLIVAN of New York stated that the kidney was the eliminating organ for circulating microbes, and in the course of this elimination might itself be damaged in a variety of ways. Hematogenous infection might be restricted not only to a single kidney, but even to a circumscribed portion of the organ. The source of the infection might not only be a general disease, but a distant and apparently insignificant focus might be responsible. Metastatic hematogenous infection of the kidney, perinephritic or paranephritic abscess was not always easily recognized, and might be confused with intraabdominal infections. A sudden attack of pain in kidney region associated with fever in a patient known to have a suppurative process elsewhere in the body should excite suspicion of metastatic kidney infection. Cystoscopy and pyelography were valuable aids, especially when urinary changes were incomplete, or the symptoms were referred to the healthy side. The treatment of perinephritic or paranephritic abscess was early drainage. Where the suppuration involved the kidney parenchyma, or where the process was an acute fulminating one, nephrectomy was indicated.

Total Transposition of Viscera.—Dr. HENRY H. SHERK of Pasadena, Cal., stated that total transposition of viscera was not so very infrequent. Its standing had changed from that of an anatomical curiosity to a matter of clinical interest and importance. It had no effect on the health of the individual. Its recognition was extremely important in certain surgical emergencies.

Reconstruction of the Female Urethra and Vesical Sphincter.—Dr. EDWARD H. RICHARDSON of Baltimore stated that congenital or acquired defects of the female urethra and bladder sphincter associated with urinary incontinence while relatively uncommon were, nevertheless, prevalent enough to be occasionally encountered in every active surgical clinic. The successful correction of such defects might challenge the skill and ingenuity of even the most experienced plastic operators. The plan of operative therapy should be dominated by the necessity of reconstructing an efficient bladder sphincter. To this end it was of fundamental importance to release from inhibiting scar tissue, jealously preserve, reunite and reinforce by either intra or extravesical plication sutures any existing sphincter rudiments or remnants. If there was complete absence of the sphincter, the construction of a compressor of the vesical neck through transplantation of the partially detached pyramidalis muscle, together with its anterior fascia, or of the pubic portion of the levator ani muscle, was the operation of choice. Reconstruction of the urethra was best accomplished by the simple submucous tunnel operation followed by the use of a retention catheter until epithelialization occurred from the bladder. Where an excess of scar tissue, or other disadvantageous local conditions, imperiled the success of this procedure, the value of the various plastic flap operations alone or in conjunction with transplanted epithelial tubes had been repeatedly demonstrated. The use of the Fallopian tube for this purpose, as attempted in his case, was, he believed, original and possessed distinct advantages. As in all reconstructive surgery, the frequent superiority of a several stage procedure must be borne in mind.

Periosteal Sarcoma in Association with Osteomyelitis.—Dr. R. L. RHODES of Augusta, Ga., reported three cases of large round cell sarcoma, of periosteal origin, which were associated with infection and necrosis of bone. They were all females, two whites and one negro. The ages were 14, 12, and 20 years, respectively. The left tibia was involved in each case. There was no history of trauma or serious illness. There was local pain in two, and none in the other. Staphylococcus aureus infection was found in each of the cases. There was rapid pulse and rather high fever in two, and none in the other. The treatment consisted of mid-thigh amputations. As to results, one patient died, and the other two were living free from signs of recurrence, local or elsewhere, at the present time.

Hernia of the Bladder.—Dr. J. N. BAKER of Montgomery, Ala., said the possibility of bladder involvement should always be suspected and due caution observed in all cases of large inguinal hernia, more especially those of advanced life and in those manifesting prostatic hypertrophy, or other signs of crippled bladder function. In all direct inguinal herniæ regardless of size or age, in all operations for recurrence of hernia for two reasons, namely, recurrences were notoriously of the direct type, and adhesions and distortions of the neck of the sac from the former operation, resulting in a possible pull on, and displacement of the bladder; in all herniae, presenting an undue amount of fatty tissue closely associated with the sac at or near the fovea inguinalis medialis, the possibility of injury to the bladder was increased and this danger signal should never go unheeded.

Jejunal Ulcer Without Previous Gastroenterostomy.—Dr. EDWARD P. RICHARDSON of Boston, Mass., said the literature gave evidence of the rare occurrence of jejunal ulcer apparently of simple type, and resembling somewhat peptic ulcer of the stomach or duodenum, and having a similar tendency to perforation and occasionally to cicatricial stenosis. No sharp line could be drawn between these simple ulcers of the jejunum, and similar ulcers occurring lower in the lower small intestine. While he had only considered jejunal ulcers, it would seem more rational to discuss as one inclusive group, simple ulcers of the jejuno-ileum. Whether these represented a clinical entity or were merely the odds and ends of various pathological processes, could not be asserted. The two cases which he reported appeared to be instances of simple ulcers affecting the jejunum. Such ulcers occurred chiefly in males beyond middle life. No definite etiology might be assigned to them. It was possible that in so rare a condition there might be almost as many causes as cases. In the cases where jejunal ulceration occurred close to the end of the duodenum, it was possible that disturbance of pyloric control might lead to gastric contents reaching the jejunum without neutralization, and so to the formation of true peptic ulcer. For ulcers situated lower in the intestinal tract, this cause seemed improbable. Since syphilis produced a form of intestinal ulceration which affected the jejunum, more readily than the ileum, and also had a tendency to cicatricial contraction and perforation, it must be considered as a possible cause of ulceration in some of these cases, although definite confirmatory evidence was lacking. Two points were of particular importance in future cases, a careful microscopic study of the lesions, including, if possible, the mesenteric lymph nodes, and the determination of the presence or absence of syphilis. Whatever the cause, the occurrence of perforation gave these ulcers a definite surgical importance, the more so since the perforation did not take place in one of the regions in which we were accustomed to search for it. He merely

offered this summary to call attention to this type of ulcer and the possible relation of some of these cases to syphilis of the small intestine.

Contracture of the Psoas Parvus as an Explanation of Obscure Abdominal Pain.—Dr. LLOYD NOLAND of Birmingham, Ala., said this contracture was not common, but he thought that its occasional occurrence might explain certain cases of obscure abdominal pain. The cases reported were the only ones of this condition discovered in over a thousand laparotomies, but even with this occasional recurrence, he thought that the condition was worth the attention of all surgeons. Each one of these cases was very carefully worked up, with medical, orthopedic, and urologic consultation, and in no instance was exploratory operation undertaken until every other practical means of diagnosis had been used with negative results.

A Skin Suture Without a Fault.—Dr. EDWARD H. OCHSNER of Chicago said that a perfect skin suture material must possess the following qualities: It must be relatively fine in proportion to its strength. It must be of uniform strength throughout and have no weak spots. It must be sufficiently strong for the purpose in hand. It must be of uniform thickness. It must be smooth and pliable. It must be impervious to the body fluids physically, *i.e.* have no seaton action. It must be unattackable by the body fluids chemically, impenetrable to leucocytes, nonirritating to the tissues and sterilizable by boiling in plain water. It must be easily stored. It must be of determinable length, not deteriorate with age, must not snarl and must not be too expensive. The skin suture material which he presented fulfilled all of these requirements and he believed was a skin suture without a fault. The No. 1 was suitable for superficial coaptation stitches. Nos. 2 and 3 were suitable for deep tension and subcuticular stitches.

Pelvic Tumors with Sacral Attachments.—Dr. ARTHUR A. LAW of Minneapolis believed that owing to the demonstrated tendency to malignant degeneration, these tumors should be removed when recognized, and he was convinced that they should always be attacked from behind through the sacrococcygeal route. The modified Kraske approach was ideal for the larger tumors and permitted them to be shelled out with little difficulty, usually without invading the peritoneum, and facilitated the control of hemorrhage. The interesting feature of this tumor was that there was only one tissue in it which could be definitely differentiated, and this tissue was prostatic tissue. This tissue suggested the interesting possibility that this tumor might represent an embryoma bearing the same relation to the prostate as did some of these tumors of the testicle to that organ, and that it might possibly be classed as a teratoma of the prostate in which development was one-sided. He was, however, unable to find any references in the literature which substantiated such an assumption. Inasmuch as it had been impossible to definitely differentiate this tumor, it was not important by what name it was designated, so long as we recognized that we were dealing with an embryoma of malignant tendency. Therefore he had stressed the importance of the removal of these embryonic tumors ventral to the sacrum, as he believed that most of them tended to malignant degeneration.

The Remaining Breast After Radical Removal of the Opposite Side for Carcinoma.—Dr. HUGH H. TROUT of Roanoke, Va., said that in a series of 27 patients under forty years of age who did not become pregnant, there was not a case of recurrence of the cancer in the remaining breast, although the recurrences elsewhere in the body were much higher in this group than in the rest of the series, all of whom were over forty years of age. Of this group over forty years of age he obtained definite information from 106, ten of whom, or over 10 per cent., developed cancer in the remaining breast, and this in spite of the fact of recurrences elsewhere in the body being as high as most of the recently published reports. In the reply received from James F. Mitchell he reported a case having a 13-year interval, and then developing carcinoma in the other breast, but not associated with a pregnancy. In a review of 218 cases of carcinoma of the breast from Rochester, Minn., 10 per cent. more of those over fifty years were alive from five to eight years after operation than of those under fifty years, suggesting there might be some ground for the rather prevalent opinion "the younger the patient the more active the malignancy." If these observations and deductions were correct, he believed surgeons should warn their patients, who were in the child-bearing period, and from whom a carcinoma of the breast had been removed, not to become pregnant for fear of serious trouble in the remaining breast.

Recurrence of the Benign Prostate.—Dr. W. A. BRYAN of Nashville stated that the patient who had had his prostate removed by a surgeon and had been relieved of his symptoms and later found those same symptoms returning had a question raised in his mind as to the genuineness of the removal of the gland. He finally was compelled to consult his physician, who examined him and told him that his prostate had never been removed, because it was still there, palpable and producing symptoms. This physician might be entirely honest, only a small per cent. of the profession probably knew of the fact of recurrence. The patient naturally felt unkindly toward the surgeon who claimed to have removed a gland which was still present at its original site. When compulsion drove him, this patient was likely to seek relief at other hands. The second surgeon probably was human and felt perhaps that he was about the only man in the world capable of doing a prostatectomy. In other words, he was conceited. He also might prove uncharitable and think that the first operator removed only a portion of the gland, and concluded that the recurrence was simply the continued growth of gross portions left in situ through ignorance or neglect. The treatment of such cases by two men consecutively robbed both of them of the possibility of arriving at the truth, because neither was in a position to compare the facts in his possesion with the facts in the possession of the other. It was only when the primary condition and the recurrence were treated by the same man that the truth could be reached. He had seen three cases of recurrence.

Meckel's Diverticulum.—Dr. ALEXIUS MCGLANNAN of Baltimore said Meckel's diverticulum had often been found as the contents of a hernia either alone or with other structures, including the cecum and appendix. In about three-fourths of the reported cases the diverticulum was the sole occupant of the hernial sac, as it was in the case reported by Littre, who gave his name to this type of hernia. Among congenital causes of intestinal obstruction, Meckel's diverticulum was generally accepted as the one most frequently present. In the series of 276 cases which he studied in 1915 there were nine instances where the diverticulum was recognized as the cause of the obstruction. Six of the patients died and three recovered after operation. In one case the diverticulum was attached to the inner surface of the umbilicus by a cord; in the others it was free or had become adherent by its tip, or a cord, to the bowel or mesentery. The obstruction was caused by entanglement of a loop of intestine around the diverticulum, except in one case, where an adherent diverticulum kinked the bowel by traction. In none of the cases was there any umbilical deformity or discharge.

Bleeding Ulcer of the Duodenum Associated with Cholecystitis.—Dr. EDWARD S. JUDD of Rochester, Minn., said that within the past year he had operated on four patients with bleeding duodenal ulcers in whom the pathologic condition was more extensive in the gall-bladder than in the duodenum. In each case the duodenal ulcer could be demonstrated easily, and in one case it was of long standing, as evidenced by the amount of scar aissue. A very severe grade of cholecystitis was also present in all of these cases. The gall-bladders of the four patients were very much alike, being rather larger than normal, with thick, edematous walls. They were not compressible, because of the inflammatory deposits in the tissues. They contained stones and infected bile in each instance. He believed that their mucous membranes were completely destroyed and that they were functionless. The findings of these four patients impressed him with the importance of infections in the gall-bladder as a possible etiologic factor in cases of gastrointestinal bleeding. A definite lesion in the duodenum was found in every instance and undoubtedly was the point from which bleeding

occurred. The hemorrhages were of the massive type, such as usually occurred from the pancreaticoduodenal artery, and yet in each case it was quite definitely shown that none of the larger vessels could be involved in the ulcerations. There was sufficient evidence to show that gastrointestinal bleeding might occur as a result of infection in the gall-bladder and liver. Balfour mentioned a case in which bleeding ceased after the removal of a chronically inflamed gall-bladder. Deaver reported profuse bleeding in hemorrhagic infections of the biliary tract. In one of his cases blood reached the duodenum through the common duct and then regurgitated to the stomach. The primary cause was streptococcic cholecystitis. He had an abundance of evidence to show that cholecystitis and hepatitis might be the source of the infection which resulted in bleeding, and he thought he also had evidence which suggested that cholecystitis might be the source of the infection causing this symptom even in the presence of ulcer of the stomach or of the duodenum.

1. Ligation of the Internal Iliac for Enormous Gluteal Aneurysm. 2. Cirsoid Aneurysm of the Scalp.—Dr. WILLIAM D. HAGGARD of Nashville said of the first patient that she complained of intolerable pain in the right leg and throbbing tumor of the right buttock. For a number of years she had been having trouble with pains in the calf of her right leg. During the six weeks prior to her entrance into the hospital she had three or four spells of excruciating pain in the calf of her right leg, referred up the posterior thigh to the right hip and had to have morphine for the relief of the pain during each of these spells. For the past three years she had noticed a swelling and throbbing in the right buttock, like a heart-beat. It was now as large as an inverted salad-bowl, diffuse, pulsating, and expansile, occupying the entire right buttock. It was soft, compressible, and thrill and bruit were made out over its entirety. An *x*-ray examination showed a large, round, soft tissue shadow, 20 cm. in diameter, enveloping the entire right buttock. Wassermann reaction (acetone insoluble antigen), 2 plus; cholesterin antigen, negative. The pain was so severe that she had to have morphine every four to six hours. Her mental condition did not seem to be at all good. She talked at random. At operation the right internal iliac artery was exposed. It was found to be as large as one's little finger. Two heavy silk ligatures were tied around the internal iliac one-half inch from its origin. To facilitate the agglutination of the wall of the aneurysmal sac it was emptied by firm pressure, and a large pad was very tightly strapped over it and firmly held in place by adhesive plaster. Convalescence was uneventful. The pulsation of the tumor which previously lifted the body perceptibly from the bed became quiet and the bruit and thrill disappeared entirely. It had been planned to do an obliterative endoaneurysmorrhapy as a second-stage following the ligation of the internal iliac, but when the aneurysmal tumor was so completely stilled by the former procedure it did not seem necessary to do anything additional.

The second case showed itself as a subcutaneous swelling made up of a pulsating network of arterial sinuses, from which radiated pulsating vessels that could be distinguished as individual trunks whether originally containing arterial or venous blood was not clear. A systolic blow and thrill might be transmitted to the palpating hand and a systolic murmur might be present and pressure on no one point obliterated the bruit. The patient was a female, aged 25, who presented with a pulsating tumor of the left scalp, which began ten years ago. Now it was about the size of a flattened goose egg, with tortuous branches spreading out to the left zygomatic arch on the left and across the median line to the opposite parietal region and posteriorly toward the occipital region. The left anterior half of the scalp was covered with a large tumor, like an aggregation of dilated, tortuous, pulsating, bluish tinted, elevated blood vessels. Just to the left of the median line was a larger mass, the size of a child's hand, with tortuous pulsating branches radiating out to the left zygomatic arch on the left. It felt like a bunch of worms or a varicocele except it was pulsatile, expansile and a thrill was felt and a bruit heard. Pressure on the external carotid artery was lessened, but it did not stop pulsation. Operation was performed by transverse incision, inch by inch, from the left middle temporal region to the right parietal well in the hair line, making a slight U-shaped flap with the base anterior. The entire tumor of blood vessels was excised en masse from beneath. The temporal artery was ligated; the posterior right occipital and anterior right temporal arteries were greatly enlarged, but not ligated. The patient was dismissed on the sixteenth day. Eight months afterward there was no return of the trouble.

The Present Status of Epiplopexy.—Drs. JOHN H. GIBBON and JOHN B. FLICK of Philadelphia stated that since the early publications of Morison and Talma, many contributions to this subject had been made from many countries and various modifications of the original technic had been suggested. Among the early notable papers in this country was one by Packward and LeConte, who presented this subject and reported two cases; another by Greenough, who presented a summary of 105 cases collected from the literature. The mortality within thirty days in these cases was 29.5 per cent., and there was improvement in 42 per cent. M. L. Harris analyzed the reported cases and several of his own and took a rather pessimistic view of the results obtained. He did not agree with the reasoning of Talma, but believed that chronic inflammatory changes in the peritoneum were influential in the production of ascites. White and other Englishmen held the same opinion. Many valuable papers had been presented during the past twenty years and showed very different views as to the benefit to be derived from epiplopexy. Their operative mortality was two out of the ten cases; one died of pneumonia forty-eight hours after operation, and the second four days after operation from peritonitis. These deaths occurred when they were following the more elaborate procedure. In the last six cases there had been but one death, with which the operation might be associated. This patient died two months after operation. She was a syphilitic.

(To be continued.)

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held February 16, 1922.

THE PRESIDENT, DR. GEORGE DAVID STEWART, IN THE CHAIR.

THE subject of the evening was "The Port of New York—Its Health and Sanitary Problems."

Congestion of Population; Housing and Community Planning.—Mr. CLARENCE S. STEIN, chairman of the Committee on Community Planning of the American Institute of Architects, chairman of the Committee on Port Development of the City Club, and formerly secretary of the Housing Committee of the New York State Reconstruction Commission, delivered this address. At the present time the Legislature was considering the plan brought in by the Port of New York Authority. This plan had been endorsed by the Merchants' Association and real estate interests because they saw in it the probability of increased business and increased real estate values; but the interest of the medical profession was not in business values or land values, but in human values. The question with them was, how was the development of the Port of New York going to affect human beings in New York? The plan was one of many schemes to cure the ills of a big city. The trouble with these schemes was that they sought the cure first and then looked at the disease afterward. The first question was, "What was the matter with New York?" The disease was concentration and centralization. The city under present conditions was not a fit place in which to live. We wanted a place where we could live happily and fully, a place to work, to play, to grow. In New York, with its crowded subways and streets, the congestion of trucks incident to the distribution of supplies, the conditions, even on Fifth Avenue, where with its lights and policemen one could walk faster than he could move in a cab, were intolerable. Congestion in the tenements was appalling. A survey of a typical downtown block showed that not one-half the rooms had light. Many of the tenements built twenty years ago fell below the standard required by

law both in respect to the size of the rooms and the question of light and sanitation. At the present time there was no up-keep. There was an insufficiency of houses, and the figures of vacant apartments showed that there was an insufficiency of housing accommodations. In 1916 there were 54,000 vacant apartments in the city, while last year there were less than 1,000 and at the end of the year only 700. But that was not the whole story, for very many of these apartments were occupied by two families where formerly one family had lived. This congestion was growing in the tenements of New York and in the apartments of the Bronx and Queens, and there was an ever-growing crowding in the subways. The plans to relieve congestion by more subways and other transit facilities simply tended to heighten congestion. Congestion could not be relieved by simply bringing people to Central Manhattan in the morning and taking them back again in the evening. The Reconstruction Commission had considered a plan to take old tenements and revamp them and bring them into line with present tenement-house laws, but it was found that it could not be done at a cost that would yield a reasonable income on the investment. Plans for new tenements were then considered. Architects had made great progress in recent years in the development of apartments with garden spaces in the center. Instead of covering 70 per cent. of the ground, they covered only 50 per cent., and were so arranged that the financial return where the price of land was not too high, was greater than in the old congested type of tenement; but this better type of apartment was not possible in Manhattan where land values were so high. To meet conditions in Manhattan a type of apartment had been worked out which covered 70 per cent. of the ground, and in which, where ordinarily there would be 36 rooms to 50 foot plot of ground, there were 46 rooms. These rooms were very small, making it apparent that the solution offered by the new apartments meant still more congestion. Then there was the problem of transportation and distribution of food and supplies of various kinds. Under present conditions business was concentrated and workers were distributed over large areas or else concentrated in very limited space. It was through a solution of the transit problem that the Port of New York authorities planned to solve the question of congestion. Under their plan, instead of bringing all food, building, and other supplies to the Island of Manhattan for distribution, the railroads terminating in New Jersey would be linked up and distribution made from the mainland to the different boroughs and suburban centers of population. New York had never been planned; its growth had been the growth of accident, and the railroads had never caught up with the growth of the city. The question now was whether the proposed plan would lead to decentralization and do away with the congestion of population and business. It would not unless we acted intelligently. As an example of the kind of mistakes that are made Mr. Stein cited that of the clothing industries. When the clothing industry was forced off of Fifth Avenue, it went over to the Pennsylvania Station section and built on a large scale. The workers live in the Bronx or the Lower East Side. Property in the Chelsea section was so valuable that this class of workers could not afford to live near their work, and transit facilities were inadequate to carry them to and from work. If the new plan simply meant a series of centers of concentration it was not better than the old way. The scheme that seemed worth while would be to develop the regions about Manhattan. There would be a triple series of railways connecting the railroads coming to the port; each circle of the series would connect a different type of city. Instead of large congested centers the towns would be limited in size as, for example, in that type of town developed in England and known as garden city plan, which provided for both industry and living. The garden city would be limited in size by being encircled by green farm land or forest land. Congestion would be prevented by ownership of the land not being in the hands of the individual who would speculate with it and force congestion, but would be held by the community as a whole and increased value would go to the benefit of the community. It was evident that if living conditions were to be bettered we must plan ahead by knowing what kind of a city we want.

Passenger Traffic—The Transit Problem.—Major General JOHN F. O'RYAN, member of the New York Transit Commission, outlined a plan for better transit facilities which the commission had formulated after their investigation which had been going on for more than a year. He first described the conditions under which people moved about in this city and declared that they were indecent and degrading and were actually lowering the moral standards of the people of the city. The conditions were something more than mere discomfort and inconvenience but involved the question of plain decency and morality. An analysis of the traction situation had revealed things known in a general way. They had found more than 200 corporations engaged in transit in the city of New York. This did not add to system. A parallel could be traced in the conditions during the war, when there were engaged not 200 allies but seven or eight principal powers. Disunited, they waged war for four years without success. They then united and systematized their campaign under one leadership and in less than six months achieved victory. Taking a lesson from this it was evident that the first essential to the evolution of an adequate transit system was unified leadership. In the second place the investigating had uncovered more than 1,000 franchises. Many of these franchises had been sold or given away dishonestly and many had been given in perpetuity. Some were unusually harsh and contained numerous conditions, while others contained no conditions whatever. The idea of a public body giving away to an individual or a corporation rights, not for a time but forever, was absurd and he did not think a court of law would uphold a franchise of that kind. The commission had gone into all these details in regard to franchises. As a result of competition some parts of the city were "overtransitized" while other parts were entirely lacking in transportation facilities. No solution of the transit problem could be looked for until the lines were operated as one, the franchises called in and profit-making subordinated to service. That brought up a third point, namely, that every company operating a transit line was operating for one primary purpose, to make money. Legally there was nothing wrong about that. A secondary reason for operating a transit line was a desire to serve the public, but only to the extent necessary to make profits. The mass of the people, however, were not interested in the money side of transit, but the thing of vital concern to them was service. To the operating company the problem was to carry the greatest number of passengers with the least number of cars; that was the obligation of the company to its employers, the stock and bondholders. These were the outstanding features that entered into the transit problem. There was no solution that was compatible with these conditions. A plan had to be devised to do away with these conditions. The commission began its work by laying down the proposition that each and every franchise must be turned in and surrendered, and the stockholder and speculator in transit securities must be eliminated. Whatever interest was provided must be limited to a fixed return. The logical place for the title and ownership of the transit system was the city of New York, the municipality. The plan by which this might be brought about was to make a careful valuation of each company's holdings and to offer the company 100 cents for every dollar of honest valuation. If a company refused the price—how could they enforce it? Well, if the commission wanted to be rough they could force the company to give the maximum of service compatible with a 5-cent fare and then the company would not make any money. Speaking generally, it would take from six to seven hundred million to a billion dollars to purchase the transit holdings of the various companies. Of course the city of New York did not have the money to make any such payment, nor has it sufficient borrowing power to raise such a sum. To meet this situation they had taken advantage of certain conditions that were brought about during the war which led to the development of a new type of corporation as exemplified in the Emergency Fleet Corporation and the War Finance Corporation. There would be a board

of control composed of three members appointed outright by the mayor and three by the interests holding equities in the transit properties, and a seventh member chosen by the six. These should function as a corporation. When a fair valuation was agreed upon by the Board of Control and the transit company, the latter would deed to the city all its holdings in return for which it would receive bonds of the operating company bearing 5 per cent. interest. There would also be an agreement by which the Board of Control would undertake to amortize the principal by setting aside 1 per cent. a year. To guarantee still further the transit companies the Board of Control would make a contract to so manage the system that the fare would always be enough to give the people adequate service, and second, it would always be enough to insure the 5 per cent. per annum and the 1 per cent. amortization. At the end of thirty-eight years the purchase price would be amortised and the city would own the property free and clear. This plan seemed radical but it would go to the root of the transit difficulties. This plan would afford better service with less equipment because all the cars of all the companies would be available and could be shifted to where they were most needed at a given time. Owing to jealousies between existing companies the plan further provided for three operating agencies, one for the subways and elevated, one for the surface cars of Manhattan and the Bronx and one covering the Brooklyn Rapid Transit and the Richmond and Queens systems would be operated by one system or the other. This plan would do away with many of the evils of private ownership and as the three operating companies would control the personnel it would be under the Board of Control. After the 5 per cent. interest and the 1 per cent. amortization found was provided for, the balance would constitute what they had termed a barometer fund which would serve as a graduated scale for the regulation of fares. If this fund fell below a certain minimum it would call for an increase of 1 cent in the fare. If the fund exceeded a certain maximum the surplus would be used as bonus for the personnel, and additional royalties to the bondholders or some other purpose. They were confident that there would be no need for an increase of the fare over 5 cents, but the plans were made so that unusual conditions, such as had arisen during the war, might be met. General O'Ryan said he had made his explanation of the plan as simple as possible so that it could be readily understood because it was unreasonable to ask the support of the public unless the scheme was understood by the people.

Harbor Pollution.—Dr. GEORGE A. SOPER, president of the former Metropolitan Sewage Commission, discussed this subject. He stated that he had received a note before the meeting asking him to speak of the more elementary facts in relation to water pollution, things that people were supposed to know, but that most of them did not know. First, it was scarcely within the knowledge of most people how bad water overpolluted with sewage could be. One of the most classic examples was afforded by the experience of London. At one time London had many cesspools built to receive waste, and in the course of time became honeycombed with them. There was a great deal of disease which was attributable to these cesspools and the use of a water supply from the same source. In the course of a few years 30,000 of these cesspools were connected with sewers and which were discharged in the easiest way, which, of course, was into the Thames. Samuel Budd, well known to physicians, had described the condition, telling us that the air was so foul that it was necessary to close the blinds of the House of Parliament and to use chloride of lime. The stench from the river was so offensive that the river steamers lost their traffic. There was no experience at that time to guide municipalities in the disposal of sewage, and it seemed that one city did not learn from another until it was visited by an epidemic, the necessity for making its waterways clean. London had put in a system by which all sewers were discharged into a main drain. About $60,000,000 had been invested in the undertaking of sanitating the Thames. All the sewage was taken to two points, where it passed through settling tanks. The first tank removed the solids and the effluvium passed to another tank, where finer sediment was collected, and was then discharged into the water, where the movement of the tides caused its diffusion. This method was not believed to be permanently satisfactory, inasmuch as the city was growing and sanitary standards were becoming more exacting. Other methods of sewage disposal were being considered, as, for instance, its intensive purification and placing it on the land. In considering some of the elementary questions in regard to sewage, we might ask first "What is sewage?" Sewage, Dr. Soper said, did not contain a great deal of excrement or solid matter, but was the refuse from sinks, bathrooms, etc. It was merely dirty looking water. If one filled a bottle with it, stoppered the bottle, and left it at room temperature the sewage would putrify and there would be first a slight flocculent precipitate. In a few days the odor would increase and the mass would become black and turbid. This indicated that the action of bacteria was taking place. If one kept the bottle long enough the unpleasant odor would disappear and we would have a subpurification of the specimen. The solids became liquified and the liquids were oxidized. All manner of waste passes through those stages. The sewer trunks in New York were comparatively short, so that the sewage was fresh and that was of some advantage. Then, too, was the additional advantage that they were combined sewers, taking both house drainage and storm water, though the latter was much less than one would suppose. It had been estimated that about a thousand million gallons of sewage was discharged daily into the water about New York. The problem that this presented had been set forth in the three volume Report of the Metropolitan Sewerage Commission, with its five volumes of testimony. There was being discharged into the waters of New York Harbor not only the sewage of New York City, but of other cities bordering on its waters, and also of inland cities, Paterson, Summit, Newark, etc. These cities had unified great sewer systems and ran trunk sewers to the harbor. In 1903 the Governor appointed a commission to inquire into sewerage conditions in the Passaic Valley. It was found that the Passaic Valley project was harmful and threatened health. The proper course of action seemed to be a suit in the Supreme Court. That suit lasted twelve years and was one of the most famous sanitary cases ever tried in this country. At that time the Bay Pollution Commission sounded a warning as to the harm that was being done to the port of New York by the large amount of sewage discharged therein. The commission recommended that a thorough study be made of all the conditions concerning sewage disposal in the metropolitan territory, some 700 square miles, and to outline a policy whereby the harbor for all time should be kept reasonably clean. New Jersey was to cooperate with the proposed new commission. This commission was appointed under the name of the Metropolitan Sewerage Commission, which carried on its work for eight years. During this time it went into the fundamentals of the subject and a great deal of careful study was given to the problem. The commissioners were selected for their qualifications for the work, there being no politics involved. Experts were brought from all parts of the world; wherever there was a man who had knowledge that could be turned to good account he was called, thus some twenty-seven experts were employed. Their reports had all been published. Of the facts brought out by this study, one was contrary to the general impression that the flushing action of the tides was insufficient to carry away all impurities to sea. Again it was shown that there was no peculiar disinfecting property in salt water. It was true that sewage was carried away from the point of its discharge, but it was not carried very far nor was it carried away permanently. Dr. Soper described investigations made to determine just what happened to an object beneath the surface of the water. The experiments were carried on in the East River, and material discharged at Hell Gate was followed. It traveled back and forth a distance of 108 miles between Hell Gate and Governor's Island, and came back to within one mile from the starting point. That observation was checked up carefully. There was absolutely no flushing action of the ocean that we could depend upon to clean out the harbor. There was a mixing action which was helpful, but it did not remove

the refuse far enough. The accumulation disappeared through the action of microbes or chemical action. In New York we had not only present conditions to consider, but worse ones threatened in the future. The plans which had been made for the protection of the harbor were engineering plans based on the experience of other cities. In short, a system of main drainage was recommended. The sewers, instead of emptying into the waters, would empty into mains and the number of outlets be reduced. These large mains should discharge into disposal plants, where the refuse would be collected and the effluvium discharged into a main tidal system which should empty at the bottom of the water at a suitable distance from the city. It was evident that in the course of time the present system would be totally inadequate to deal with the increasing amount of sewage. By 1940 we would have 12,000,000 people in Greater New York, and by that time we must have some new plan for taking the sewage out to the ocean. The problem was within the range of engineering, but it would cost $140,000,000 The question had been raised why not put the sewage on farm lands. That could not be done because it would take more land than was available. It would take the whole of Long Island and would destroy the value of the Great South Bay, and this, too, would cost $140,000,000. Other plans for intensive purification were discussed, which Dr. Soper said would be objectionable to those living in the vicinity. The longer the solution of the problem was deferred the more expensive it was going to be in the long run. The Metropolitan Sewerage Commission had gone out of office of its own accord. It had recommended that there be appointed an interstate supervising and directing body. At the present time there was no regulation or supervision whatever exercised over the discharge in the metropolitan district, and yet there were some eighty municipalities discharging their waste into New York Harbor, and each one might act without reference to the welfare of the great population in this territory. When the Metropolitan Sewerage Commission had completed their work the Board of Estimate and Apportionment took over the plans and submitted them to the city engineers for criticism and suggestions. There was a great deal of criticism and dissatisfaction and nothing had been done. Recently the Chamber of Commerce of the State of New York has taken an interest in the sewerage problem, as in the transportation questions and other things, and it was possible that there might be a renewed interest taken in the question. Any plan for dealing with the problem of harbor pollution should be a comprehensive plan and should apply not only to the metropolitan district of New York, but to New Jersey as well. Any plan adopted must be flexible and capable of expansion. It must apply to all localities wishing to discharge waste into the harbor. The work need not all be done at once; it should be done progressively, but it should conform to a general plan and be in charge of a central authority. The question of sewage disposal for New York was not a single problem, but a number of problems, each one necessarily related to the other.

Port Development Plans and Public Health.—Dr. ROYAL S. COPELAND, Commissioner of Health, spoke briefly on this phase of the subject. He first explained that the reports in the newspapers which had accredited him with saying that doctors should advertise and that he was glad he was not a member of the New York Academy of Medicine had misquoted him; that was the first statement misquoted him, the latter remark he had never made at all. What he had said was that the medical profession as a profession should make known what it could do so that the public might be informed and not fall into the hands of chiropractors and all kinds of quacks and charlatans. That was quite a different statement from the one attributed to him that physicians individually should advertise. Coming to his subject, Commissioner Copeland said he had observed a note of regret in Dr. Soper's remarks because of the fact that the city had not gone on with the project of sewage disposal. The reason this and other plans had not been carried out was because of the financial inability of the city to handle them. We would never solve these great problems of transit, sewage disposal and water supply until the metropolitan district was divorced from the State and other suburban places naturally linked up with the city were taken in. There was never united support of any project by the legislature and there never would be while New York City paid 70 per cent. of the taxes, contributed 60 per cent. of the population, and had only 40 per cent. of the representation in the legislature. We could never forge ahead with these much needed projects until we were independent from up-state, and he believed we would not prosper until we had that independence. It had recently been estimated that all the available fresh water that could be brought to New York would be exhausted by 1931. If that was true it would become necessary to have some filtration process by which we could take water from the Hudson River above Poughkeepsie. That would cost another $140,000,000. The city did not have the money. We were now paying interest on bonds of the city of New York issued in 1865 to pay for the paving of streets that had been paved three times since the original bond issue. These were matters of interest to the medical profession because they had a very direct bearing on public health, yet when there were hearings on such questions as had been discussed this evening the doctors were not represented. The time was here when the medical profession ought to be alert in these matters having to do with public health. At the present time we had a great problem in the housing situation. There were 100,000 families tucked two families to two or three rooms. He had seen instances where twelve persons were living in two or three rooms. There were hundreds of socalled homes without light and ventilation. It was time that the medical profession said something about that. If we were living in normal times he would put the seal of the Health Department on those places, but as there was no other place for those people to go, he could not turn them out. The improvement of the harbor was a matter of vast importance. We had in this city only one day's supply of milk, perhaps three or four days' supply of other essential foods, and a supply of meat for one month. If we were cut off from the centers of supply we would starve in sixty days. These were matters of importance and demanded solution from the standpoint of public health. Commissioner Copeland congratulated Dr. Cofer on the fine piece of work he had done for the port on Hoffman Island and described the difficulties under which that work had been done. He said he hoped the New York Academy of Medicine would go forward and would use its influence in solving the questions relative to the harbor. He was not there to discuss the relative merits of the two port plans but he did believe the whole question of port development was one which involved public health to such an extent that it might well engage the serious attention of the Academy of Medicine in order that this influential body might direct public officials to solve these problems in the right way.

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

ARTERIAL SCLEROSIS. By LOUIS F. BISHOP. 383 pages, with illustrations. Published by Henry Frowde and Hodder & Stoughton. Price, $4.25.

HYGIENE OF WOMEN AND CHILDREN. By JANET E. CLAYPON. 354 pages, with illustrations. Published by Henry Frowde and Hodder & Stoughton. Price, $5.00.

EARLY SYMPTOMS AND TREATMENT OF CIRCULATORY DISEASE. By R. M. WILSON. 245 pages, with illustrations. Published by Henry Frowde and Hodder & Stoughton. Price, $4.75.

LE BACTERIOPHAGE, Son Role dans L'Immunité. By F. D'HERELLE. 227 pages, with illustration. Price, 12 fr. Published by Masson et Cie., Paris.

NOUVEAU TRAITÉ DE MÉDECINE. By Professors G. H. ROGERS, FERNAND WIDAL, and P. J. TEISSIER. 718 pages, with illustrations. Vol. IV. Price, 40 fr. Published by Masson et Cie., Paris.

Miscellany.

Dessessartz and His Croup Remedy.—It often happens that the man whose memory is handed down largely through some modest invention was not an obscure citizen but one of the prominent men of his day. However it happens, this is probably the rule. The subject of our sketch was born in 1729 and was a brilliant student who at first chose theology as a career. He decided in favor of medicine, however, and, being too poor to go to Paris, took his degree at Rheims. He was a small town practitioner for 15 years, but made himself so well and favorably known that the Paris faculty invited him to join it. In 1770 he took the chair of surgery, and in 1775 that of pharmacy, becoming dean in 1776. He opposed the formation of a new medical society, because he feared that the profession would be split up instead of benefiting from a healthy rivalry, but after the Recolution he took the opposite view and helped organize the medical and surgical societies which culminated in the Academy of Medicine. When he died in 1811 no less a man than Cuvier delivered the eulogy. His first book, published in 1760, was on the physical education of children, and one of the last of his writings, in 1807, was a monograph on croup which was responsible for handing down a French equivalent of hive syrup. His first book created such an interest that Rousseau, then writing his celebrated "Emile," made extensive modifications therein, but neglected to give Dessessartz credit. The latter felt no resentment against Rousseau for his "swiping" and remained one of his greatest admirers, although he had contributed as much to the book as many an acknowledged collaborator. Despite his extensive practice, he could not save anything, but he had made a religion of treating the poor without fee, so that his poverty redounds to his credit. His cough mixture contained ipecac, senna, and wild poppy, and was probably of use in false croup. It was reputed to be an expectorant and sedative, and was apparently not intended to produce vomiting.—*La Presse Médicale.*

Alexander Trallianus as a French Practitioner.—It is not generally known that this ancient Asiatic physician, who lived in the first half of the VI Century, practised for a time in France. His biographers mention Spain as the extreme of his occidental travels. He took his surname from a little town in Lydia and his father before him was a physician. He went to Rome, where he succeeded in establishing himself successfully. But before this period he traveled extensively, his writings bearing evidence of his knowledge of various countries. The object of travel was clearly that of a post-graduate course. It is known that he had studied under at least one celebrated master, concerning whom hardly anything is known. Alexander merely mentions the name of this professor's son. In France, called then Gallia, he learned some organotherapy—the treatment of epilepsy with the testicles of a cock. In Italy he studied the medicinal properties of Italian wines. When he had finally located in Rome, patients came to seek him from the entire Empire. His reputation was so exceptional that he was spoken of simply as "The Doctor," without any qualification. This recalls the custom of our own day of terming the most eminent practitioner of a limited community "the doctor." Like Galen he wrote his own system of medicine, which comprised 12 volumes and which gained him the repute in some quarters of being second only to Hippocrates. In therapeutics he was an eclectic of eclectics and did not shrink from incantations and other expressions of psychotherapy. He was against purgation and used opium sparingly, combining it with other remedies. His celebrated "cynoglossus pills" contained a number of substances, including opium, and are still to be found with some modification in the French Codex.—*La Presse Médicale.*

Geography of Scrofula.—Steiner approaches this subject from the viewpoint of the ophthalmologist. Having practised in Java he announces that the so-called scrofulous lesions of the eye and appendages were practically absent in the Javanese. But it is equally true that the pure white inhabitant of the island is immune. The factors believed to favor the development of the disease in Europe are represented here as well—uncleanliness, vermin, and a history of measles, whooping cough, etc. Bone scrofula and lupus are infrequent, so that in general it may be asserted that clinical scrofula has a very low incidence. The frequency of pulmonary tuberculosis is, on the other hand, conspicuous, and the two basic conditions, tuberculosis and scrofula, are clinically dissociated. The absence of the latter in Java may be attributable to the fresh air and light. In other words, the natural conditions agree quite well with those utilized in temperate zones in the treatment of scrofula—abundant fresh air, sunshine, life in the open. In some parts of Europe the scrofulous child is made to go lightly clad and largely nude, the better to profit by the light and air. From this angle scrofula is a creature of cold climates, in which man is forced to clothe himself heavily and pen himself up in dark and unventilated rooms. It has a genetic relationship with rachitis, with which it is often associated, with the addition that in rachitis the young child is also immobilized or deprived by circumstances from taking exercise of any kind. The author does not touch on the subject of dietetics in this paper and has but little to say of the probable relationship between tubercle and scrofula. But if the former is almost universal, the so-called scrofulous child has no more latent tubercle than any other child.—*Schweizerische medizinische Wochenschrift.*

More Bubonic Plague in Paris.—In 1921 Paris escaped with less than a dozen cases of this malady, occurring only in small foci without any secondary cases. Joltrain, who has been in charge of plague cases in earlier visitations, relates that the diagnosis was not made at first, for the patients were badly septic when first seen. Puncture of enlarged lymphnodes, however, revealed the *Bacillus pestis.* A drop of blood from the finger pulp swarmed with the latter. Intensive intravenous serotherapy was unable to stem the condition. Two victims were shown to have been bitten by rat fleas, or at least by fleas in rat-infested neighborhoods. The rat is now known to suffer from a chronic form of the plague, a fact which makes the authorities apprehensive for next summer.—*Le Bulletin Médical.*

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THE EFFICIENT TREATMENT OF COMPOUND FRACTURES*.

BY CLARENCE A. McWILLIAMS, A.M., M.D., F.A.C.S.,

NEW YORK.

THE ordinary results of the old routine treatment of compound fractures are so bad that I have taken it upon myself to bring this hackneyed subject to your attention, hoping that a definite, systematic procedure may be generally adopted which will give results as excellent as those obtained in simple fractures. Better teaching of this important subject is required in our Medical Schools. The old bugbear of the threatening presence of infection has led men to consider most important of all the treatment of the soft parts, allowing the fractures to take care of themselves, hoping by some legerdemain to remedy the resulting deformities at some future date. I particularly wish to bring out the fact that the proper, early position of the bony fragments is just as important to care for as the wound in the soft parts, and both should be treated, at the primary operation, by methods which have proved themselves efficacious, times without number, during the war.

The following case gives the text for my presentation of the subject:

A lad of 21 years of age was injured by getting his arm in a rotary machine in a manufacturing suburb of New York City, on November 22, 1920, producing two fractures of each of the bones of the left forearm, badly compounded in the lower third. Both the lower fragments were exposed in the lower wound. The upper fractures were simple.

The lad was taken to a hospital operating room, given ether, and the treatment adopted was that along the old, orthodox lines. The wound was cleaned and sewn up. The surgeon's attention was entirely given over to the care of the soft parts, though there was no débridement of them, *i.e.* removal of the contaminated areas, nor were the bones placed in such apposition and held there that they would remain in proper position. No Carrel tubes for subsequent Dakin's solution were inserted.

X-ray pictures were taken soon after the operation. Following the operation, as was to be expected, there was infection and the wound had to be opened throughout. The old treatment with packing of the wound was instituted. No Carrel tubes were employed nor Dakin's solution. The splint used was a fracture box and then a wire splint. Weights were applied to the hand, with the elbow in extension. There was a long convalescence, due to the infection, and the final result is seen in the *x*-ray (Fig. 1). The elbow was stiff and out straight (the pictures here shown were taken six months after the accident), and there was no pronation nor supination. There were fractures of the left

*Read before the Westchester County Medical Society, White Plains, November 15, 1921, and before the Surgical Section of the New York Academy of Medicine, January 6, 1922.

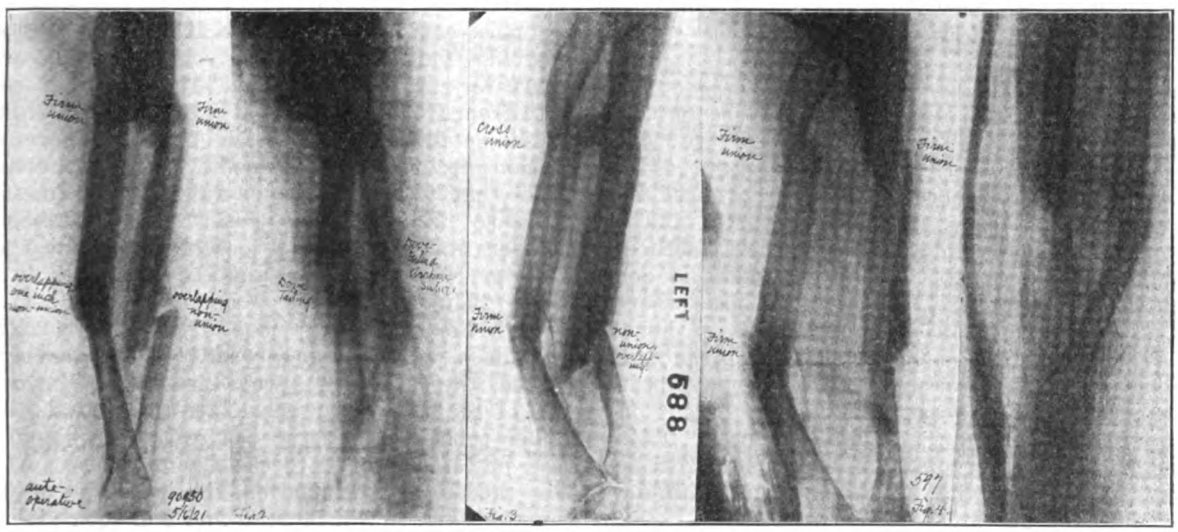

FIG. 1.—Result of old method of treating compound fractures. Soft part infection only considered without reference to the position of the fragments. No Carrel-Dakin treatment. Result after six months, when wound was healed. Upper fractures united with angulation. Lower fractures overlap and are ununited.

FIG. 2.—Lower united fractures dovetailed into each other. Held by chromic sutures.

FIG. 3.—Result four months after operation of Fig. 2. Upper fractures united but with a rare complication of forearm fractures, cross-union. Below the radial fracture has healed, but the lower ulna fragment has become displaced and is ununited.

FIG. 4.—Immediate result of third operation in which the upper cross bridge of bone was chiseled away and the lower ulna fragments were sawn off with Gigli saw and placed end to end where they were held by chromic sutures.

FIG. 5.—Taken five weeks after the second operation. The ulna fragments have remained in perfect apposition and from the disappearance of the drill holes and the haziness of the fracture line one judges that new bone is being formed.

radius and the ulna, each in two places at the corresponding levels. The upper fractures became united with some angulation and with cross union. The lower fractures were ununited and each fragment of the radius and ulna overlapped its corresponding fragment an inch.

Operation was undertaken by me in the Presbyterian Hospital, June 9, 1921, seven months after the accident. The lower fractures, at the first operation, only were operated upon (Fig. 2). A tourniquet was placed about the arm, the fragments were exposed, and no interposed soft parts were found between the fragments. The upper ends of the lower fragments were sawn so as to make points of their extremities, while the lower ends of the upper fragments were slotted. With the ends thus dovetailed into each other, drill holes were made through each and chromic gut sutures were passed through and tied. The soft parts were sewn together without drainage, and copious sterile dressings were applied, anterior and posterior plaster of Paris stirrups were made, and bandaged on the extremity with the hand in mid-pronation, and the elbow held in less than a right angle. The wound healed by first intention. There was nonunion at the end of six weeks, but union began at the eighth week and was complete by the twelfth week. The picture, taken four months after the operation, was somewhat disappointing (Fig. 3). There was firm union of the radial lower fragments, but the lower ulna fragment had slipped. It overlapped the upper fragment one inch, and was ununited. At the site of the upper, firmly united fractures, there was a firm, cross bridge of bone, three-quarters of an inch wide, which looked as though it were a fragment of bone which had become interposed rather than a bridge formed of new bone from periosteum. Cross union is a rare complication in forearm fractures, for of 100 forearm fractures treated in the Presbyterian Hospital there was not a single instance of cross union. There was no pronation nor supination. A second operation was undertaken on October 6, 1921, four months after the primary operation (Fig. 4). Both upper and lower fractures were exposed by one long, posterior, ulnar incision along the outer edge of the ulna. The bridge of bone between the upper healed fractures was chiseled away cleanly without difficulty. The lower ulna fragments were exposed and a Gigli saw passed about them both. The bones were sawn off flush and brought end-to-end, where they were held by four chromic sutures passed through drill holes (Fig. 4). Union was by primary intention. At the present time, five weeks after the operation (Fig. 5), the ulna fragments are in perfect apposition. There is, however, as was to be expected, no definite union as yet. I should not look for union to occur before eight or ten weeks at the least. There is, however, a haziness about the ulnar fracture and the drill holes have become filled in as though new bone were beginning to be formed. The periosteum about the radial fracture (Figs. 4 and 5) has proliferated much new bone.

War surgical experiences have much advanced the correct treatment of compound fractures, and I will outline my idea of how civil compound fractures should best be treated. The first variety is one which we can easily pass over. It is the case where skin is punctured by a sharp fragment of bone. This fragment should not be reduced until the skin all about it and the protruding fragment have been cleaned, then the bone extremity should be cut off flush with the skin and the fracture reduced. Then the edges of the skin puncture should be cut away and sewn, possibly with a rubber tissue drain inserted into the depths.

The second most important variety, in which we are more particularly interested, is that in which there is a large wound in the soft parts, all of which are contused and dirty. How shall we proceed? The first thing to be done is, always to give an injection of tetanus antitoxin. Then administer ether to the patient and carefully proceed with disinfection. The wash of the skin should not be allowed to get into the wound. Pack this first and then shave the skin. Then wash the skin *away* from the wound with gasoline, benzine, kerosene, or ether. Apply alcohol, allow this to dry, then paint the skin with iodine solution 3½ per cent. Then remove the pack and pick out all foreign particles from the depths. Flood the wound with ether and then with 3½ per cent. iodine and trim away the contused skin edges and fascia. Expose the depths with retractors and cut away all frayed-out edges of tendons and pulpified muscle, which latter is black, which does not bleed, and which does not contract on pinching it. Expose the bone ends and bring them out of the wound. Remove only entirely loose bone fragments. Leave all fragments which are attached to periosteum, never mind how slightly, since they may act as grafts later. Do not cut away any periosteum except frayed-out fringes. The ends of the bones should be cleaned by sawing off a thin slice or biting off small sections with a rongeur. If it is seen that the fragments will not stay in proper apposition, one should make the point of one fragment dovetail into a depression made in the end of the opposite fragment, and through these two fragments drill holes should be made and chromic sutures passed and tied. I would not advocate metal plates nor metal screws nor metal wires, since they predispose to infection. They are seldom necessary. If the fragments cannot be held by any other means, one might, in exceptional cases, use a screw or a metal plate but only when subsequent treatment with Dakin's solution is used. Subsequently these foreign substances should be removed as early as possible.

Divided nerves should be anastomosed with silk. If these do not unite, the sutures will hold the ends together, which can then be easily identified at a subsequent operation.

We are now ready for the final steps. *Never close a large compound fracture.* I cannot say this too strongly. I think it not too emphatic to say that most compound fractures, if sewn up, become infected. This was so strongly shown in the war, even after careful débridement, that an order went forth from Headquarters that no war wound should be completely sewn up at the primary operation. Prevention of infection should be our endeavor rather than to await its appearance, and I know no means so efficacious as to insert Carrel's tubes at the operation, and to instil thereafter through these tubes, every two hours, night and day, Dakin's solution, held in a reservoir and never instilled through the tubes by means of a syringe. This latter is a very common error. When a syringe is used, the infection, always present in the open ends of the tubes, is washed into the wound. The rubber tube leading from the reservoir should always be left attached to the Carrel tubes. After this thorough Dakinization, if infection of the wound occurs, it will be mild and will soon yield to the Dakin's solution. The sterile Carrel tubes should be removed every day and replaced by fresh ones and copious dressings applied. At the finish of the operation an appropriate splint, which will make the dressings easy, should be applied. A picture of the best splint for a compound forearm fracture, that I know, is shown in Keen's surgery, Vol.

VII, Blake, page 477. It is a Thomas splint, bent at the elbow, and any degree of traction can be made by twisting the Spanish windlass attached to the fingers. In this way we have absolute control of all infection as well as the position of the fragments. I do not understand why Carrel tubes and Dakin's solution are not more generally used in all infections. They are our sovereign remedy for this condition. A surgeon is not well up in treatment who is not familiar with the Carrel-Dakin method of treatment of wounds. Dakin's solution robs infection of all its terrors so one should never omit at the primary operation to place the fractured bones in proper position and to see to it that they stay thus. After the temperature has been normal for a few days, we may then consider sewing up the soft parts. This, however, should not be done until we have made smears from the depths of the wound and have them examined for bacteria. We may sew up the wound if we do not get more than one bacterium in two or three fields on two successive days, provided that that bacterium is not the hemolytic streptococcus. If the time since the original injury is not more than from 6 to 10 days, and we get such negative smears, nothing need be done save insert sutures through the edges with a rubber tissue drain. If the sewing up is done *after* 10 days, it may be necessary to excise the granulating skin edges, but deeper granulations should not be touched. By this secondary suture no time is lost in the final outcome and one feels very confident of his control of the infection. One can then focus attention upon the fracture as though it were a simple fracture.

I can hear objections to examining the smears because many suburban hospitals are not supposed to be equipped to do this. I am sorry for any hospital which cannot have this done, since most house surgeons are competent to do this. As for Dakin's solution, tablets are now made from which can be made very acceptable Dakin's solution. If infection occurs, a thick, yellow pus means staphylococcus infection; thin, colorless pus, streptococcus; green pus, pyocyaneus, which is of low virulency. Foul, odorous discharge usually means colon infection. If there is any crepitation, bubbling, or gaseous formation in the wound, the infection is of the dangerous type of malignant edema (gas gangrene), caused by the *Bacillus aerogenes capsulatus*, which requires free incisions of the soft parts, with the cutting away of any edematous, blackish, gaseous muscle, and the insertion of numerous Carrel tubes and abundant, frequent Dakin's solution irrigations. No bandage had better be used under the splints because of the danger of producing ischemic paralysis from too tight bandaging, thus cutting off the proper blood supply of the limb upon which bony union depends.

Dakinization is particularly advisable in compound fractures in a situation such as the forearm, where complete débridement might destroy very important structures, such as tendons, etc. Infection should be anticipated and minimized by Dakinization, since infection produces such dire results in the loss of tendons. Objections to Dakinization are raised, firstly, in the difficulty of getting house officers to attend properly to the dressings, and, secondly, to the difficulty in making standard Dakin's solution. The first objection is met by insisting upon the operating surgeon doing the dressings himself for the first week as long as infection threatens, and the second, by the fact that ready-made tablets, to make Dakin's solution, are good substitutes for made-to-order Dakin's. The constant irrigations will keep the wound clean as no packing can do, and the antiseptic action will diminish the virulency of the infection. After smears are practically negative, the wound can be secondarily closed and no time lost in the eventual outcome. With the fragments put in the proper apposition at the original operation, and held in this position, and with the infection controlled, the fracture can be treated as any simple fracture.

The treatment of compound point fractures has been much simplified by the principles enunciated by Willems, of Ghent, whose results the treatment of joint war injuries has fully substantiated. His method has supplanted in actual experience all the old surgical traditions. I can fully agree with all that he has said, and, from being a sceptic, have become a great enthusiast, having seen marvelous results from his method of treating joint injuries, fractures, and infections by *active* (never passive) mobilizations. In such an injury, excise all the devitalized, dirty tissues in the soft parts and the skin edges. Remove all free particles of bone, then completely close the synovial membrane, and Dakinize the superficial soft parts through Carrel tubes. Then immediately follow this up by active motions (never passive), every two hours. One is surprised how little disturbance is caused in ordinary fractured bone, about joints, by these motions. By using only *active* motions, the patient will not go so far as to allow any motion between the fragments, which would cause pain, while damage to their proper position might be caused were *passive* motions to be instituted, since these might be carried too far. To be certain no movement takes place between the fragments, it is well to have the active motions, made by the patient, performed once under the fluoroscope. Should pus appear in the joint, open it freely immediately. Do not insert any drainage tubes nor Carrel tubes. Do not flush the joint but insist on the patient's moving the joint every two hours, day and night. The muscular contractions, causing the active motions, provide the very best possible drainage for the joint. By these contractions the joint is kept emptied of pus and ankylosis is prevented. All voluntary motions can safely be allowed and should be vigorously encouraged. The patient will not himself go beyond the safe limit of motions as pain would thereby be caused. The patient is, at first, very timid, but as he finds no pain is caused by the motions, confidence will be acquired and the motions will become more and more free and extended. Every hospital should have ready for immediate use Balkan frames and Thomas' splints. The old expectant treatment of compound fractures is no longer held by the courts to be sufficient; one must go further and apply prophylaxis against infection as well as set the fractures properly *at once*. Only by such adequate treatment can the surgeon avoid having damages awarded against him.

After treatment is all important. Union of bones depends on a good blood supply and everything

should be done to keep this as free and unimpeded as possible. Bandages should not be tight. Bakings are most helpful in producing hyperemia in the extremity. Splints should be removed every day, if possible, and the joints above and below the fracture should be moved passively and gentle massage given to the muscles of the extremity. By these means stagnation of the blood stream is prevented and muscular tone is preserved. Retain splints on the extremity the minimum duration of time. Using all these means of treatment, non-union will be a rarity and the final results as to function will be much better than under the old, expectant treatment, and the period of disability will be cut in half.

Dr. Samuel Stern last summer visited the clinic of Prof. Lexer and Dr. Kohler where for the past year and a half they have been treating fresh fractures with so-called irritating doses with most satisfactory results. They have succeeded in reducing the healing time to about one half. Usually only one treatment is given as soon after the fracture has been set as possible. The voltage is around 180,000. The dose given is about one-tenth of an erythema dose, thus:

Distance	Filter	Spark Gap	Ma	Time
35 cm.	½ mm. Cu.	180 KM.	2	10 mm.

In small bones only one field is treated; larger bones are treated anteriorly and posteriorly but with reduced time.

Conclusions.—1. Débride the injured and septic soft parts thoroughly. 2. Never completely close a compound fracture except the small punctured ones; before doing this, however, the projecting point of bone should be sawed off flush with the skin. Most compound fractures become infected. 3. As the best prophylaxis against infection, insert Carrel tubes at the time of the first operation and Dakinize the wound every two hours by means of a reservoir and *never* through the syringe. 4. Place the bones in accurate apposition at the time of the original operation, enlarging the wound if necessary. Hold them there by chromic sutures. Rarely will metal appliances be necessary. 5. Apply a splint which will be comfortable, hold the fragments in good position and which will render the daily dressings easiest. 6. When the purulent discharge becomes slight, smears should be taken from the depths of the wound and examined for bacteria. When there is not more than one bacterium in two or three fields found on examinations on two or three successive days, the wound should be sewn together, after which the subsequent treatment will be that of a simple fracture. 7. Every hospital should have Balkan frames and Thomas' splints ready for any emergency.

19 East Sixty-fifth Street.

One Paranoiac Exploits Another.—Heuyer and Santenoise described what is probably not an infrequent form of behavior. The stronger character was a man who had a sort of hypnotic control over a woman paranoiac. It became necessary to interne the latter. An active and intelligent paranoiac who cannot be committed for insanity can do much harm. Attempts to interne such men are usually responsible for an entire propaganda directed against the authorities who are accused of false commitments and the idea is conveyed that many alleged insane ought to be liberated. The man in the case fought against the commitment of the woman and sought to utilize her case as an example of unwarranted internment.—*La Presse Médicale.*

PERICECAL TUMOR, *X*-RAY DIAGNOSIS; BENEFIT FROM *X*-RAY AND RADIUM THERAPY FOR POST-OPERATION RECURRENCE.*

By SINCLAIR TOUSEY, M.D.,

NEW YORK.

Mrs. D., aged 66 years, was referred to me by Dr. Parke for *x*-ray diagnosis. The symptoms had been trouble with digestion and spasmodic vomiting of solid food, then she would feel well for about three weeks. This had been going on for about three years. She complained of "a dull weight in the stomach which was relieved by taking hot water," also a pain under the right shoulder. Seven years before coming under observation she had undergone an operation for the removal of a tumor thought to be malignant, and of one ovary. On examination a tumor was readily palpable in the right iliac fossa. The first radiograph was of the abdomen prone upon the plate with the stomach and intestine empty. Others showed the stomach after the barium meal, the patient being erect (A) or prone (B). Another (Fig. 1) was made 6 hours later and others were made after a barium enema. Of these, Fig. 2 was made with patient erect and for Fig. 3 the patient was prone with the thorax 45 degrees lower than the pelvis. This (Tousey's) position is devised in case of ptosis of the transverse colon to show whether that part of the intestine is free to gravitate toward the thorax. If so, a supporting belt and pad might relieve the symptoms due to ptosis but not if the transverse colon remains bound in the pelvis by adhesions.

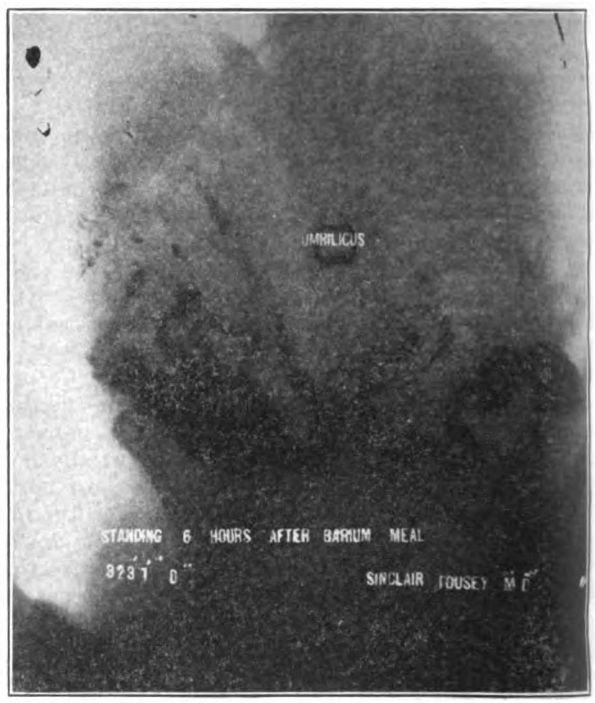

Fig. 1.—Pericecal tumor with stasis in small intestine; six hours after barium meal.

The radiographs showed in A that the stomach was at high level; the *pars pylorica* of irregular

*Case reported before the Surgical Section of the New York Academy of Medicine, January 6, 1922.

shape, and the duodenal cap incompletely filled and somewhat deformed. The B picture showed the *pars pylorica* and duodenal cap deformed; no distention of the distal portions of the duodenum; normal appearance of the body of the stomach. Fig. 1, six hours after the barium meal, shows that the stomach was empty but there was a remarkable accumulation throughout the small intestine. The meal was arrested in the region of the cecum. The small intestine did not gravitate into the pelvis at all. In Fig. 2 the enema reached all parts of the large intestine; no ptosis; cecum and ascending colon of irregular shape and at a high level. In picture F, the cecum appeared of irregular shape and at a high level. My deduction from these *x*-ray findings was that the tumor did not involve the intestine and that it could be removed without operating upon the intestine.

At operation Dr. Parke found a mass of a gelatinous character which was removed (I never received a microscopical report). The wall of the intestine was not involved. Four months later the patient was brought to me for treatment with radium and *x*-ray. There was again a palpable tumor in the right iliac region, almost complete intestinal obstruction, with inability to take anything but liquid nourishment, and a great deal of pain.

Treatment was by radium and *x*-ray. The *x*-ray was applied from a Coolidge Tube actuated by my own generator which produces a constant high tension current. The cathode particles all have approximately the same velocity and there is an approximation to homogeneous *x*-radiation. A deep dose is secured in a shorter time and with less surface effect than with any of the generators giving current made up of a series of impulses. The radium was applied with the patient supine and with a heavy bowling ball compressing the right iliac region so that the radium tube was in very close contact with the deep-seated tumor. As a result the tumor disappeared, the action of the bowels became natural and the patient was able to take all kinds of nourishment. She gained in weight and strength and was free from pain. Once or twice in the history of the case the peritoneal cavity became distended with the same gelatinous substance and this was evacuated through a median incision. Four years after the first *x*-ray examination and three years after the last *x*-ray and radium treatment and eleven years after the first operation the patient died following a period of pain and vomiting. We felt that the treatment by radiation had had a very beneficial effect even though it did not prevent ultimate death.

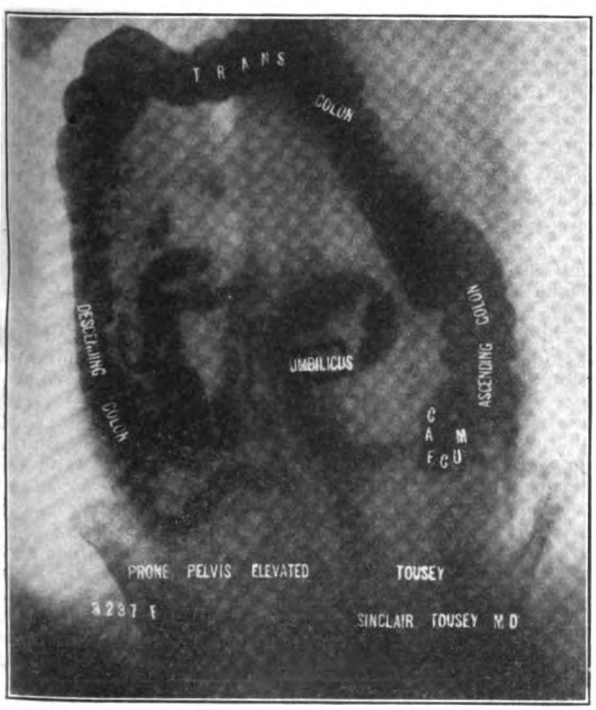

FIG. 2—Pericecal tumor with stasis in the small intestine, but an enema fills all parts of the large intestine

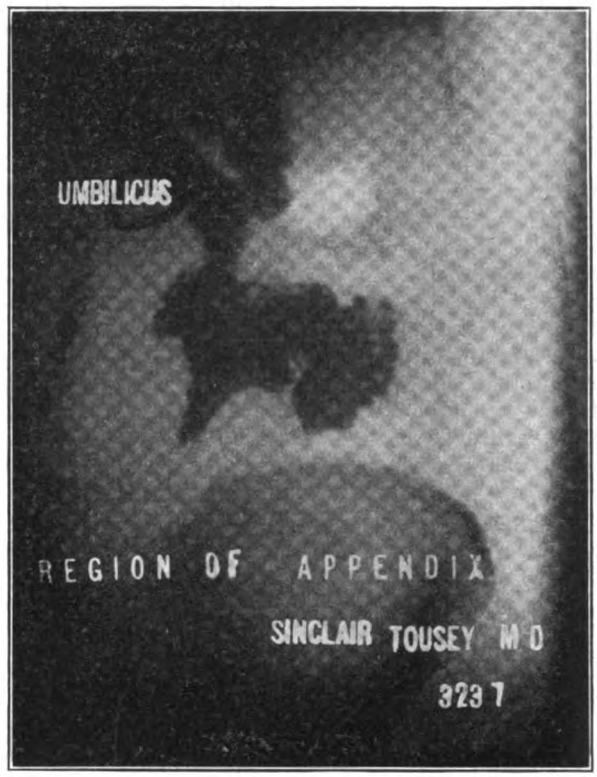

FIG. 3.—Pericecal tumor without involvement of the wall of the intestine.

Treatments, 1917, pericecal tumor.

X-ray, October 11, 90 Kv, 3 ma, 10 inch 3 mm. aluminum, area exposed. 6 inch diameter 10 minutes, left hypochondriac region.

Radium, October 25, 3 hours, 20 mg. glass, lead and rubber, divided in three spots 1½ inches apart.

X-ray, October 27, 83 K, 3 ma, right upper quadrant, 10 minutes.

X-ray, October 31, left lower quadrant, 10 minutes.

X-ray, November 7, 83 K, 3 ma, 10 min. + 10 min., right lower front, right side of back, prone, with compression ball at cecum.

X-ray, November 10, 83 K, 3 ma, 10 min. + 10 min., left upper front and left back.

Radium, November 14, 3 hours, 20 mg. glass, lead, thin rubber.

X-ray, November 17, 7 min., right upper front, abdomen.

X-ray, November 21, 7 min., left lower front, abdomen.

She had burning sensation November 20 and 23; just a faint suggestion of redness in the right iliac region. November 30, slight swelling could be noted in the right iliac region.

X-ray, November 30, 7 min. + 7 min., right and left sides of back.

adium, December 5, 20 mg. 3 hours, glass, lead and thin rubber.
hese reatments were followed by disappearance of the tumor and natural movements of the bowels.
850 SEVENTH AVENUE.

PURPURA WITH GASTROINTESTINAL SYMPTOMS.

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PURPURA is generally recognized as a circulatory manifestation of a severe toxemia. It is characterized by hemorrhages into the skin, mucous, or serous membranes.[1] The extent of the extravasations of blood is supposed to correspond with the intensity of the intoxication. The purpuras are unsatisfactorily classified as symptomatic and essential or arthritic. The symptomatic purpuras depend upon or are associated with some recognized acute or chronic infection or toxemia (the acute exanthemata, typhus, typhoid, tuberculosis, ptomaines, snake venom, and certain drugs), constitutional disease (cancer, Hodgkin's, Bright's, scurvy) nervous diseases (tabes, myelitis), or trauma (varices, fractures). The essential purpuras include those in which both the causative agent and the mode of entry remain unknown and for purposes of description are spoken of as (1) the simple, affecting the skin, (2) the rheumatic or Schoenlein's disease, involving the skin and joints, (3) Henoch's purpura, in which the skin, joints, and gastrointestinal mucosæ are involved, (4) the hemorrhagic purpura or morbus maculosis of Werlhof. which is characterized by hemorrhages from all of the mucous membranes,[2] and (5) the fulminating type described by Calmels[3] as occurring in children of five years with fatal results after from ten hours to four days. Little is actually known of the pathology of this obscure condition although Fraser[4] has described purpura, on the basis of microscopical study of the bloodvessels taken at autopsies, as an inflammatory disease of the bloodvessel walls in which the blood is allowed to pass through into the surrounding tissues. Mouson[5] emphasizes the importance of the blood platelets as the cause of the large group of true hemorrhagic purpuras but holds there are as many varieties of these hemorrhagic syndromes as there are factors in the mechanism of hemorrhage. In one, the wall of the vessel is at fault, as in slow endocarditis; in another, the coagulating ferments are lacking, as in sporadic hemophilia; in others nothing can be found to explain the hemorrhagic tendency, as in scurvy.

Henoch[6] published his first report in 1874. He presented four cases, two boys and two girls, ranging in age from 4 to 15 years, with skin hemorrhages about the joints and blood in the stools. In these cases the "spots" appeared first and in one dysentery together with "spots" on the elbows. All showed remissions of the disease extending over a period of four to seven weeks. In 1876, two additional cases were reported by him. Osler contributed several cases in three separate reports on the subject. (*American Journal of the Medical Sciences*, Jan., 1904). This form of purpura with colic has been described and illustrated by many others and unreported cases occur in the records of most large hospital services. The four cases herein presented are of special interest from the standpoint of diagnosis and treatment.

CASE I.—A. F., referred by Dr. E. Payne, Riverhead, N. Y., Oct. 25, 1919. Girl, aged 5 years, born in U. S. of Polish parents. Family history negative. Past history represents patient as a delicate eater and has having had "stomach trouble" She developed petechiæ on arms and legs; this was followed by nausea and vomiting, pains in elbow, knee, and fingers, pain about the umbilicus, hemorrhages into skin of all parts of the body, epistaxis, hematemesis and melena.

Temperature, 98.8; pulse, 90; respirations, 18.

Physical examination at this time revealed a fairly well nourished child, anemic, with her hands clasping the umbilical region as in an effort to express intra-abdominal pain. There were scabs at the mucocutaneous junctions of her nose marking recent hemorrhages, and a suspicious spot on one tonsil; the submaxillary gland on one side was slightly enlarged; chest negative; tenderness and increased muscular resistance above and to left of umbilicus but no definite rigidity or localized tenderness; the stomach was distended with gas to the interspinous line; the liver palpable one finger below the costal border; the spleen was not palpated. No Kernig or meningeal signs were elicited.

November 10: Temperature, 102°; pulse, 90-100. Blood count: W. B. C., 10,000; polys., 70 per cent.; R. B. C., 1,700,000; Hgb., 72 per cent. Wasserman negative. Blood cultures negative. Urine: Albumin, 3 plus; blood in considerable amount; casts, hyaline and granular.

Dr. R. E. Stetson was called in consultation and the case placed under his care (Bellevue Hospital) for repeated transfusions, while repeated efforts were made to determine the possible existence of a focal infection. The child improved symptomatically for a short time after each transfusion, but after each of the five transfusions she inevitably relapsed until her exitus on Dec. 9, 1919.

Note in this case (1) the possibility of tonsillar infection; (2) the persistent tendency to bleed and the prolongation of life by repeated transfusions; (3) the sequence of "spots," vomiting, joint pain, central abdominal cramp, and profuse hemorrhages from the skin and mucous membranes; (4) the absence at any time of a definite indication for surgical intervention.

CASE II.—C. S. Born in U. S. A. Aged 22 years. Female Admitted to Bellevue Hospital, May 26, 1920, with a history of having been treated for purpura hemorrhagica. In September, 1918, she was operated upon for acute suppurative appendicitis. The appendix was removed at that time and no untoward experience with bleeding was encountered. Symptoms on entry (1920) were nausea, vomiting, pain and mass in right lower quadrant. Examination confirmed hard, fluctuating mass in right iliac region, localized rigidity and tenderness. Blood count: W. B. C., 18,000, and 88 per cent. polynuclears.

At operation (May 27) hemorrhagic fluid was found in peritoneal cavity. Inflamed omentum and right parietes. Abscess to outer side of cecocolon. Acute phlegmon of cecocolon and enlarged mesenteric nodes from ileocecal region to root of mesentery. Technic: Amputation of cecocolon with distal end of ileum and proximal end of colon left in the lower and upper ends of wound, respectively.

Pathology: Thickened edematous cecocolon, termination of ileum, and appendix stump of 1.5 cm. Enterolith in stump (which may have ulcerated through giving rise to enterocolitis and abscess). Acute suppurative colitis.

May 29: Ileostomy.

June 10: Local condition satisfactory. Purpuric eruption over body and hemorrhages from nose and ileal stoma. Leucocytes, 75,000; differential count polys., 90; transitionals, 2; lymphocytes, 5, and myelocytes, 3.

Blood culture negative. Wasserman negative. Transfusion (Dr. Stetson).

June 28: 3,200,000 red cells and 40 per cent. Hgb. Petechiæ over lower extremities. Prolonged profuse menstrual bleeding. Weight 102 pounds; 98 on admission. Transfusion (Dr. Stetson). Convalescence. Burke's Convalescent Home.

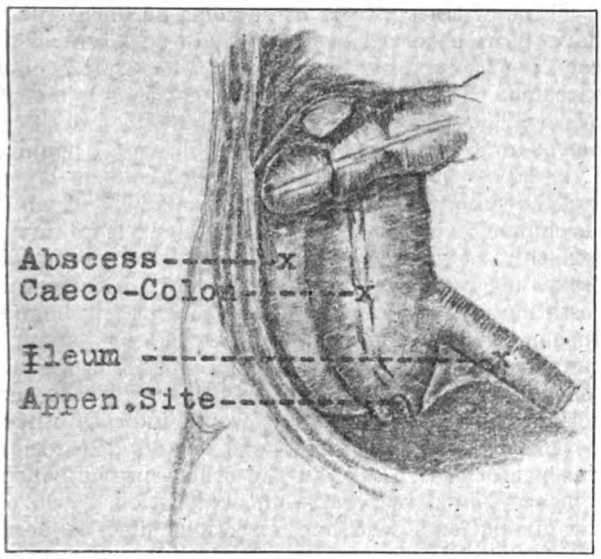

FIG. 1.—Case II. Illustrating the phlegmonous ileocolon and perforated appendix site, following an appendectomy 20 months before.

Sept. 17: Operation of enterocolostomy and removal of terminal ileal loop. Lateral anastomosis carried out as expeditiously as possible. The ileum was divided distal to the site of anastomosis and everted by attaching a rubber catheter within it and drawing on the outside of the abdomen. The bleeding was profuse and uncontrollable, excepting by pressure and heat within the abdominal wall. Within the abdomen no difficulty with bleeding was encountered.

Sept. 20: Ileal loop ligated and on the following day excised.

Oct. 4: General condition satisfactory. Bowels moved from fourth day post-operative. Patient healed primarily.

May 2, 1921: Patient had been seen in interim and found in good condition; weight reached 120, and bowels moved spontaneously 1-3 times daily. She was admitted on the tuberculosis division of the hospital and succumbed on June 1 in the third stage of pulmonary tuberculosis.

Note: (1) bleeding history; (2) association of purpura with enterocolitis; (3) absence of purpura 3¼ months later but persistence of the "bleeder" tendency as manifested in operation for closure of ileostomy. Rapid convalescence within normal period; (4) final development of virulent pulmonary tuberculosis and exitus 2 years 9 months after first coming under observation.

CASE III.—M. R., U. S. A. Aged 30. Female. Admitted to Bellevue Hospital M,ay 20, 1921. Illness began with acute onset of persistent vomiting and pain in upper abdomen Abdomen generally rigid and tender. Urine negative. Blood: Leucocytes, 20,400 and 90 polys. The pronounced rigidity and continuous vomiting led to provisional diagnosis by the house staff of perforated gastric ulcer. Temperature normal. The acute abdominal signs responded so well to the usual preoperative morphine that the feeling arose that the patient might be suffering from mesenteric thrombosis or that the condition might not be surgical at all. At operation a recent hemorrhage of the subserous tissue of the mid-transverse colon was disclosed with purpuric spots on an adjacent loop of small intestine. This hemorrhagic tissue was dissected away and the abdomen was closed. The convalescence was normal, excepting for the nausea which was prolonged four or five days after operation. The microscopical examination of the tissue removed showed "fatty omentum infiltrated with blood."

Note: (1) absence of history of purpura; (2) sudden occurrence of serous hemorrhage without associated hemorrhages from the mucous membranes or skin; (3) the pronounced vomiting and abdominal pain out of all proportion to the discoverable hemorrhage; (4) the abrupt disappearance of the symptoms and the untoward convalescence following the administration of morphine and laparotomy.

CASE IV.—A. L. Male. Age 46 years. Machinist. Born in Germany. Family history negative. For the past 10 years he has suffered from recurring attacks of dyspepsia One month ago he tripped over a steam pipe 4 feet from the floor and passed bloody urine in the afternoon of the same day. The next day he vomited blood and the following three days passed bright blood from the bowels. He has had no other evidence of hemorrhage from the gastrointestinal or urinary tracts; no signs of bleeding into the skin or joints. This patient was not seen by me until four weeks after these acute symptoms. His medical advisers at the time of injury suspected gastric ulcer and proposed operation. No positive physical or laboratory findings persist at

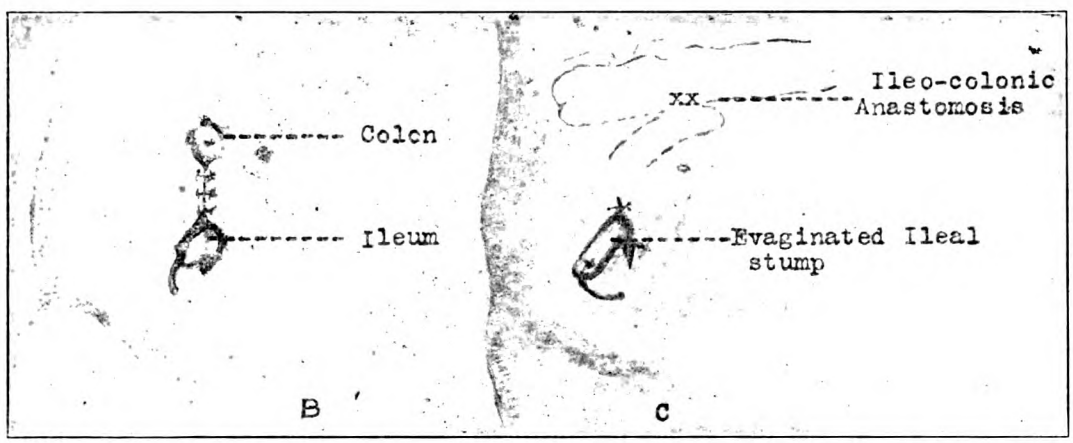

FIG. 2.—Case II. Showing colopexy and ileostomy following excision of cecocolon for what appeared to be malignancy (*B*); and final enterocolostomy and evagination of ileal stump (*C*). Although the transverse and descending colon were left unused and closed at proximal end for four months, this loop of colon promptly regained motor function after ileocolostomy. Hemorrhages decreased with improvement in the general condition of the patient.

the present time, except an acute suppurative gingivitis. For the treatment of this condition and for the removal of this possible focus of infection the patient has been referred to a dental surgeon.

Note in Mr. L.'s case a similarity with Case II in that active suppurative foci exist in both in association with hemorrhage from the digestive tract. From experience with the above cases, and the purpuras occurring from time to time in routine practice, it appears that one has to be on his guard for surgical indications. In the cases above enumerated there may have been an indication for enucleation of chronically diseased tonsils before the first patient came under observation. A thorough clean-up of the pyorrheal condition was certainly called for in the fourth individual. The eradication of the infected material was obviously necessary in Case II, and investigation appeared to be indicated in the third case. The relationship existing between the infectious process and its hemorrhagic manifestations is believed to be very suggestively shown in the second patient.

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616 MADISON AVENUE.

SARCOMA OF THE STOMACH.*

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SURGEON TO ROBINWOOD HOSPITAL.

WHILE carcinoma of the stomach is of rather frequent occurrence, sarcoma is seldom met with in this organ, few cases having been reported. It is for this reason the case here reported is of interest. Basch[1] thinks sarcoma of the stomach to be of more frequent occurrence than we have been led to believe, but does not undertake to make an estimate of its frequency. Apparently his contention is borne out by a report from the Mayo Clinic[4] for twelve cases occurring there from Jan. 1, 1913, to December 1, 1920, or during a period of approximately seven years, sarcoma appeared in the proportion of one to sixty-eight of carcinomata, approximately 1½ per cent., which is a much greater frequency than is reported from other clinics and sources. In 1919 Smithies and Ochsner in an analysis of 928 cases of cancer of the stomach found only 4 of sarcoma or less than ½ of 1 per cent. The German clinics estimate the frequency at 1 per cent. Douglas[2] gathered together 227 cases of sarcoma of the stomach from the literature, and added to them 3 from his own experience, making a total of 230 reported at the time of the writing of his paper. In a discussion of his paper before the New York Surgical Society, Dr. Erdman reported, in addition, two cases from his own experience and Dr. Fischer, during the same discussion, one more case found at autopsy. Dr. Haggard[3] of Nashville, Tenn., has reported a case and Dr. Basch[1] another, making altogether, with my own, 236 cases of sarcoma of the stomach. One hundred and fifteen of these were operated upon and the diagnosis made then, and the rest were found at autopsy.

Three distinct groups of sarcoma of the stomach have been observed: (1) Spindle-celled myosarcoma; (2) lymphosarcoma, and (3) round-celled sarcoma. Sarcoma may involve the whole stomach or form large masses growing from it. Cantwell removed one of these growths weighing 12 pounds. Lymphosarcoma originates in the submucus layer, and the spindle cell type in the muscular layer, while carcinoma originates only in the epithelial layer and this fact is of diagnostic significance, for it makes ulceration when present in sarcoma a manifestation of much later date than in carcinoma. Inasmuch as all the various forms of sarcoma metastasize more slowly than carcinoma, prognosis following operation should be better, but the experience of the Mayo Clinic[4] would indicate otherwise. Of the 12 cases found there, "Resection was performed in six; in the other six the condition was found inoperable on exploration. Two of the six patients who had resections died of peritonitis following operation. One died four months after operation of recurrence in the lower bowel, liver, and remainder of stomach. One returned five months after operation in poor condition; he had lost 20 pounds and had a mass in the left epigastrium which probably was a recurrence. Another returned seven months after operation apparently with recurrence. The remaining patient was operated on too recently to be considered in the results. Four of the six patients who had explorations are dead. They lived from six weeks to four months after exploration. Information has not been received from the other two patients." These cases would indicate that prognosis following operation is exceedingly unfavorable. However, a number of patients have been known to recover following operation and to live for a number of years. Three patients in a list reported by Gossett were living one, four and six years respectively. Haggard[3] reports a case which he found in the literature in which the patient was living seven and one half years after operation, while in a case operated by Moschowitz in 1909 the patient lived until 1919, and then she died with some other disease. In a case reported by Rupert and operated upon by Schopf the patient was well fourteen years after. Metastases seems to occur earliest and most frequently in the lymph nodes in relation to the stomach and later to the liver following the same line of progress as carcinoma. Sarcoma is located most frequently just above, but not at the pylorus, and the location next in frequency is at the greater curvature, then the wall of the lesser curvature and occasionally the entire stomach is involved.

Symptomatology—At first there seems to be but little gastric disturbance in sarcoma of the stomach. Pain is usually the first symptom noted and becomes more pronounced at the advent of ulceration. Vomiting and hæmatemesis are not as constantly present as in carcinoma, nor is pyloric obstruction so frequent. Cachexia develops slowly but in anæmia is usually present. An inflammatory leucocytosis has also been reported. Schlesinghe

*Read before the Academy of Medicine, Toledo, Ohio, October 1, 1920.

states that in 10 per cent. of the cases of sarcoma there is present enlargement of the spleen. Hydrochloric acid is more frequently present in sarcoma of the stomach than in cancer, but in a small proportion of cases is absent. Blood may be present

FIG. 1.—Gross appearance of the growth.

in stool and in vomit, but its absence does not rule out sarcoma, as it does in cancer. It would seem to be absent in a majority of cases until late in the progress of the disease. While the *x*-ray can only tell us that a deformity of the stomach wall is present, nevertheless it constitutes our most reliable diagnostic help, taken together with an accurate history of the case.

This patient, C. W., a carpenter by trade, forty-five years of age, was referred to Robinwood Hospital, Toledo, by Dr. F. A. Cobb of this city on July 7th last. He gave the following history: Father died of pneumonia and mother of "nervous breakdown." One brother living at forty-seven and one sister at thirty years of age. No brothers or sisters dead. Has always been well until the past two or three months. About June 20 last, after an attack of severe pain in the epigastrium, which radiated across to the left side, he vomited about a pint of dark-colored fluid which he thought at the time to be coffee. Following this he had diarrhea; the stools were black. He vomited the same kind of dark-colored fluid from time to time until July 4; since then has not vomited at all; his bowels soon became regular again, the stools appearing normal. During this time he belched much gas and complained of a dull ache, most of the time in the epigastrium, that food did not relieve. He gained seven pounds during two weeks prior to his entrance to the hospital.

Physical examination: Weight 137 pounds, pulse 78, temperature 97, respirations 18; blood pressure, systolic 114, diastolic 64. Nutrition seemed good and he was well developed. Teeth good; tongue slightly coated; pupils reacted normally; heart and lungs negative. There was no distention of the abdomen, some gas in colon, and slight tenderness in epigastrium to the right of the median line. Neither the edge of the liver nor the spleen could be felt. Reflexes normal. No enlarged glands. So far there was little upon which to base a diagnosis, except the history of the case, the vomited blood, the bloody stool, and the epigastric pain. The man would have felt comparatively well had it not been for the persistent and oftentimes severe pain. He was referred to Dr. A. J. Hartman for an *x*-ray examination of his stomach and intestinal tract. Dr. Hartman reported that the stomach tone was orthotonic. Size and position normal, though the form was of fish-hook type, moderately mobile. Peristalsis was interrupted for about two inches along the lesser curvature and at this point, and for the same distance, a filling defect was observed. Motility was somewhat delayed and a tender point over the stomach to the right of the median line was observed. One-third of the meal was retained after six hours. Duodenal bulb normal. Diagnosis: Probably carcinoma at lesser curvature or possibly an ulcer. Unquestionably a surgical case.

Examination of the blood gave a hemoglobin reading of 85; red cell count of 4,170,000, and white cell count of 15,300. Wasserman negative. Uranalysis negative. Following his examination at Robinwood, the patient went to Battle Creek, Mich., and Dr. Eggleston wrote to me that the *x*-ray there showed the fundus of the gallbladder distinctly. Dr. Hartman did not observe it in his plates, but otherwise the *x*-ray findings and diagnosis were exactly the same. Unfortunately, the chemistry of the stomach content was not determined, except that of a vomited portion largely made up of blood.

Operation.—On August 8 the patient was readmitted to Robinwood and was operated upon the following day. At this time his respirations were accelerated to 30 and pulse 100, otherwise he had not changed materially since examination in July. Operation, under gas anesthesia, consisted of opening the abdomen in median line above the umbilicus, eviscerating the stomach and as much as possible of the duodenum, when a subtotal gastrectomy was done. Clamps were applied above and below, and well outside the diseased area, and this area removed with a cautery. The duodenal opening was closed with linen and the stomach with catgut and silk anastomosis. Bleeding points were carefully ligated with catgut and the abdomen closed without drainage. The patient was placed in bed in good condition; in fact, he did not suffer shock at all, and very soon after his pulse and respiration dropped to normal, and remained so throughout convalescence. His recovery was as uncomplicated and uneventful as recovery from a simple appendectomy.

Pathological Report.—The specimen removed was turned over to the laboratory for examination and Dr. A. H. Schade reported as follows: Gross description: Specimen consists of about two-thirds of the stomach. On the lesser curvature at near the middle is a large ulcerated mass 80-50 mm. On cross section it has the appearance of fish flesh. The mucous membrane of the stomach outside the ulcerated area appears normal. The ulcer has an irregular outline and seems to be made up from the fusion of several smaller ulcers. Sections of the mass show it to be made up of solid masses of lymph cells with a small amount of fibrous infiltration and a small area of inflammatory cells. Eosinophiles very numerous. There is noted, too, a decided increase in the reticulum.

Diagnosis.—Lymphsarcoma which may be entirely

FIG. 2.—Photomicrograph of a section of the growth.

localized, or which is more likely to be a part of a general lymphsarcomatosis of the gastrointestinal tract. In the former case the prognosis is good; in the latter it is of course very bad. The very abundant eosinophilic infiltration may be taken as one indication that it is a generalized process. Such a condition sometimes be-

comes leucemic and hence the man's blood should be examined from time to time. At this date, November 21, the patient has gained many pounds in weight, is working at his trade, and expresses himself as feeling as well as he ever did. He is a bit careful of his diet, but eats plenty of food and is not distressed in the least by it.

It is no doubt quite true that in many cases it is impossible to differentiate before operation between ulcer of the stomach and cancer, and it is equally difficult to differentiate between these diseases and sarcoma. In fact, so far as recorded, a correct diagnosis of sarcoma of the stomach prior to operation has not been made, though the disease has some distinctive signs which should lead one to suspect its presence in at least a small proportion of cases. With evidence of tumor of the stomach in a patient who has not yet reached the age when it is usual for cancer to appear, a short history of gastric disturbances, absence of blood in either gastric contents or stools, with the presence of free hydrochloric acid, and an anemia with an unusual amount of pain in a majority of instances, should lead us to suspect the presence of sarcoma.

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DIPHTHERITIC AND POSTDIPHTHERITIC PARALYSIS.

By HERMAN B. SHEFFIELD, M.D.,
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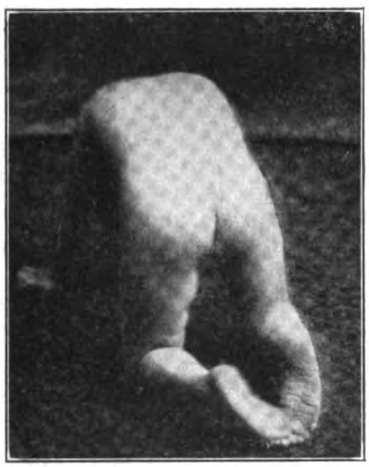
DIPHTHERITIC, or more correctly speaking, postdiphtheritic, paralysis is observed comparatively more frequently nowadays than prior to the use of diphtheria antitoxin. This is readily explained by the fact that as a result of antitoxin treatment so many more children survive an attack of diphtheria and hence are more liable to its after effects. There is no positive evidence on hand to prove that diphtheria antitoxin acts as a preventive of paralysis. Postdiphtheritic paralysis seems to be more common in apparently mild cases of diphtheria, and we frequently meet with children suffering from postdiphtheritic paralysis whose parents are not at all aware of the preexistence of diphtheria and only on thorough questioning recall that several weeks before the onset of the paralysis their children had been ill with a mild sore throat which was diagnosed as tonsillitis. This, by the way, is one of the main reasons why some cases of polyneuritis are occasionally attributed to other infectious diseases—which might have set in some time between the overlooked attack of diphtheria and the development of the paralysis. Only very recently I saw a six-year-old boy, afflicted with postdiphtheritic paralysis of the muscles of the neck and extremities, who about four weeks before had suffered from a sore throat and two weeks later from an attack of the grip and was treated for torticollis and muscular rheumatism of grippal origin.

The apparent lack of correlation between the degree of severity of the attack of diphtheria and the frequency of concurrence of paralysis has led to a great deal of uncertainty as to the actual cause of postdiphtheritic paralysis. Is it the toxin engendered by the diphtheritic microorganism at the seat of the local lesion that primarily involves the peripheral nerves and secondarily the nerve roots, etc., or are we dealing with some form of general sepsis which finally settles in the peripheral nerves? Careful study of this subject leads me to the conclusion that we are actually confronted by both of these processes, *i.e. general sepsis*, giving rise to sudden paralysis during the acute course of the diphtheria (*e.g.* heart death), and *local toxic action*, leading to the more gradually developing postdiphtheritic polyneuritis. Indeed, postmortem findings tend to confirm this assumption. Thus, on the one hand we find a parenchymatous and granular degeneration of the heart muscle, a toxic myocarditis, in connection with similar degenerative lesions in the liver, spleen, kidneys, and brain; in short, lesions that are commonly found in very grave forms of septic processes; and, on the other hand, pathological processes that are limited essentially to the peripheral nerves and contiguous structures. In other words, in the latter case we are dealing with a selective toxic action similar to that observed in poliomyelitis and akin diseases, or in polyneuritis, due to chemical poisons, as for example, lead or alcohol. This view explains why sudden heart death is so rare during the *convalescence* from diphtheria, and, when it does occur, it is the result of involvement of the vagus nerve and respiratory muscles. As to the exact pathology of this, postdiphtheritic, variety of paralysis, our knowledge is still incomplete. Different lesions have been recorded by different clinicians, ranging between simple inflammation in the peripheral nerves and the anterior cornua of the spinal cord and severe lesions in the medulla and brain. Experimentally it has been shown that the inflammation spreads by way of the nerves rather than of the blood vessels.

Involvement of the palate usually precedes that of any other portion of the body, and is attributable to the fact that the nerves of the palate are most exposed to the diphtheritic poison. In the same manner, for instance, the abdominal muscles suffer first when the diphtheria is localized in the umbilicus. Paralysis of the palate is manifested by a nasal tone of the voice (rhinolalia aperta) and often regurgitation of liquids through the nose in swallowing. "P" is pronounced like "M." It is due to failure of the soft palate to close the nasal cavity during phonation (closure of the anterior nares removes the disability). The patients are usually unable to distend the cheeks in blowing, to blow out a candle, or to gargle. On inspection of the pharynx it is found that in pronouncing "ah" the soft palate fails to rise as in health, and that sensation is lost when the palate is touched. Less frequently the larynx is affected. Laryngoscopic examination then discloses failure of the epiglottis to shut during the act of swallowing, and immobility of the vocal cords during phonation (aphonia). In bad cases there is also difficult deglutition, and, exceptionally, paralysis of the tongue and concomitant difficulty of speech. The paralysis of the throat, by the way, may be limited to only one side, ordinarily the side which presented the primary diphtheritic lesions. Furthermore, the nose and throat may escape the paralysis entirely, while the extremities may suffer.

In close connection with the paralysis of the throat and most probably as an immediate extension of the peripheral degenerative process along the cervical plexus, the neck is the next most frequent seat of predilection for the effects of the diphtheritic poison. The paralysis may be so very slight as to escape observation or, owing to the accompanying neuritic pain, may be mistaken for "stiff neck." Where the paralysis is pronounced, the child is unable to support the head, so that the latter drops either forward or sideways.

With the involvement of the cervical portion of the cord the diphtheritic degenerative process usually spreads to other portions of the cord. Hence the loss of the patellar and often the Achilles tendon reflexes, and the gradual appearance of pain and weakness or paralysis of several groups of muscles of the extremities. The pain is either spontaneous or on pressure upon the nerve trunks or muscles and consists of pricking, tingling or cutting sensations. Occasionally numbness prevails. The paralysis, like the pain, is symmetrical on both sides of the body, but usually more pronounced in the lower extremities. Here it is ordinarily manifested by an unsteady, irregular, ataxic or dragging gait; "the legs are moved as if they were at once heavy and limp" (Gowers). In the arms the muscular disorder is characterized by an irregular tremor and incoordination. After some time, especially in severe cases, the muscles lose their response to the faradic current and show marked evidence of atrophy. The irritability of the nerve trunks is feeble to both the faradic and galvanic currents. Less frequently the paresis extends to the muscles of the trunk, abdomen and thorax.



Diphtheritic polyneuritis in a boy four years old, affecting several groups of muscles of the neck, trunk and extremities. Note his total inability to rise from the floor.

In the case here illustrated almost the entire body musculature was affected. The four-year-old boy had a "sore throat" about four weeks prior to the onset of the paralysis. As the epidemic of poliomyelitis, though passed, was still vivid in the minds of the profession, the case was diagnosed in several clinics as infantile paralysis. When the patient came under my observation two weeks later his paralysis did indeed resemble that of poliomyelitis. Thus, he was unable to walk without support, and even then his gait was unsteady and waddling. When in recumbent posture he was unable to turn around and when on the floor he was unable to rise (see the illustration). He could use his arms freely but could not grasp firmly. The muscles of the neck were badly involved, the head dropped forward and sideways beyond control of the patient, and there were also distinct signs of implication of the intercostal muscles and possibly also the diaphragm—judging by the sighing, irregular respiration. On superficial examination the symptoms greatly resembled those of poliomyelitis, but, in addition, we found marked paralysis of the palate, with regurgitation of fluids through the nose on swallowing, moderate aphonia, difficult accommodation of the eyes for near objects (without involvement of the oculomotor or abducens) and, although the paralysis was already of long standing, the muscles showed no signs of genuine atrophy, real wasting, as is always met with in infantile paralysis. Moreover, the history of a preceding "sore throat," the symmetrical involvement of the muscles during the onset without recession of the paralysis at a later stage were very helpful in the diagnosis. The patient regained the power in the muscles of the trunk and extremities in the course of six weeks. The paralysis of the muscles of the neck, however, persisted for several months thereafter.

Occasionally the affection of the respiratory muscles is very grave in character, and exceptionally may even lead to a fatal issue. Whether or not in such cases there is simultaneous degeneration of the heart muscles or vagus nerve is not fully established. In both cases there is more or less marked dyspnea and arrhythmia.

As previously stated, the eyes quite frequently present signs of diphtheritic paralysis, chiefly by loss of the power of accommodation. The patient cannot read from a near point, but is able to see objects at a distance. This symptom, of course, cannot be elicited in the very young or in the myotic patient. The ciliary paralysis is usually bilateral, more pronounced on one side than on the other. The light reflex remains normal or is slightly sluggish. Occasionally the external eye muscles are affected, giving rise to strabismus when the recti are attacked or ptosis when the levator palpebri is implicated—in consequence of paralysis of the oculomotor or abducens respectively. In connection with paralysis of these cranial nerves it may here be noted that several cases are on record in which other cranial nerves were affected and that organic lesions (thrombosis, embolism, and hemorrhage) were found in other portions of the brain which led to permanent paralyses. I am inclined to believe that these gross lesions were septic in character, symptoms of *general sepsis* already spoken of.

In very severe cases we may also find retention or incontinence of urine, and trophic disturbances.

With the aforementioned typical symptoms in view, and more especially with a history of antecedent diphtheria, the diagnosis of postdiphtheritic polyneuritis ought to be made without much difficulty. However, the history may be obscured by complicating diseases and the symptomatology may be either very slight or exceptionally severe, so that the diagnosis may tax the skill even of the expert. Diphtheritic polyneuritis is most apt to be mistaken for poliomyelitis, especially of the so-called polyneuritic type. In both of these affections pain and paralysis form the paramount symptoms, and unless there be a history of diphtheria and paralysis of the palate in the one, or a history of exposure to poliomyelitis and marked paralysis and atrophy in the other, I hardly believe that a differential diagnosis can be made clinically with any degree of certainty in the early course of the disease. Considerable difficulty is experienced also in differentiating poliomyelitis from postdiphtheritic

paralysis in which the muscles of the neck and trunk are involved, as in the case already referred to (see the illustration). In all such cases the eyes should be particularly scrutinized for loss of accommodation or strabismus, which, as already stated, is a rather common occurrence in postdiphtheritic paralysis. The author had the opportunity to observe an eight-year-old girl suffering from progressive bulbar paralysis which was mistaken for postdiphtheritic paralysis. In the former affection we usually find early involvement of the tongue (tremor, difficulty of speech and atrophy), dribbling of saliva from the mouth, mask-like appearance of the face, in addition to the paralysis of the velum palati and the muscles of the pharynx and larynx. Furthermore, the disease is progressive in character, whereas postdiphtheritic paralysis shows an early tendency toward recovery. Finally, polyneuritis from lead, alcohol and arsenic poisoning, as well as endemic polyneuritis (*beriberi*) have several symptoms in common with postdiphtheritic polyneuritis and the two can in the early stages be differentiated only by careful attention to their etiologic factors. In their later stages the pathognomic symptoms of their own are decisive in the diagnosis. Thus, in lead palsy, recurrent epigastric pain, blue line along the gums, and marked radial paralysis (wrist-drop); in arsenical neuritis, paralysis and severe pain, especially in the distal portions of the extremities, early muscular atrophy, and often reaction of degeneration and trophic disturbances of the skin (hyperidrosis, glossy skin, etc.); in alcoholic neuritis, a history of severe cerebral symptoms at the onset, pronounced ataxic gait or paresis, symptoms of alcoholic intoxication in other organs of the body, such as the heart and liver; beriberi develops insidiously with epigastric pain, precordial oppression and general debility and wasting and edema of the lower extremities; sensory disturbances are absent. Moreover, in none of these forms of neuritis we obtain a history of diphtheria or definite signs of paralysis of the palate.

As we have repeatedly emphasized, postdiphtheritic paralysis is the result of a degenerative process, be it chemical or bacterial, of the peripheral nerves, primarily originating at the seat of the diphtheritic lesion. Hence, in order to prevent the paralysis we have to endeavor to destroy the toxic products at their primary source, which is generally the nasopharynx. I may possibly venture the opinion that perhaps one of the reasons why postdiphtheritic paralysis is more common in mild cases of diphtheria, and more particularly since the antitoxin era, is the fact that in both cases but little attention is given to the local lesions. And I therefore urgently recommend that the throat be actively treated locally, irrespective of what other measures are being employed for their constitutional effect. The following combination will be found particularly useful for that purpose:

Acidi phenolis, 3i.
Resorcini, 3ss.
Pulv. camphoræ, Gr. xv.
Alcoholis, 3iv.
Glycerini, q.s. ad f, ℥iii.
M. S. Swab throat every three to six hours.

Simultaneously with the throat treatment, the nose is thoroughly cleansed with warm boric acid or Dobell's solution. It is generally recognized that strychnine is a useful remedy in both the acute and the chronic peripheral neuritis, and I firmly believe that if administered early in the course of diphtheria, strychnine is a very efficient preventive of the diphtheritic paralysis. In severe cases it should be given hypodermatically (gr. 1/60, t.i.d.), otherwise by mouth and its use should be continued for several weeks.

The feeding should receive especial attention, more particularly in infants. As a rule, only part of the food is regurgitated during the swallowing and when food in small quantities is administered at frequent intervals, nutrition will rarely suffer. However, where the palatal paralysis is complete, the infant must be fed by gavage, with a small catheter introduced into the stomach by way of the nose. Older children usually succeed in swallowing semi-solid foods, even if liquids are regurgitated. In these cases custards, soft boiled egg, milk toast, well-cooked fruits and cereals and vegetables will answer the purpose admirably. The pain is rarely so severe as to call for anodynes, but if need be, the salicylates, with or without pyramidon, will give prompt relief. A well-padded felt collar will be found very useful to support the child's neck and also to relieve pain in paralysis of the muscles of the neck; and a warm tub-bath, followed by gentle general massage should be given daily, for the soothing effect upon the peripheral and central nerve systems as well as to stimulate the body musculature. Rest in bed is essential during the early course of the polyneuritis, and more especially when the heart or respiratory muscles are involved. When cardiac arrhythmia persists I have derived considerable success from the administration of small doses of digitalis, and do not hesitate to recommend its use, the views of some clinicians to the contrary notwithstanding.

127 West Eighty-seventh Street.

RECTAL STRICTURE AND RECTAL CANCER TREATED WITH CARBON DIOXIDE SNOW.

(PRELIMINARY REPORT.)

By E. JAY CLEMONS, M.D.,
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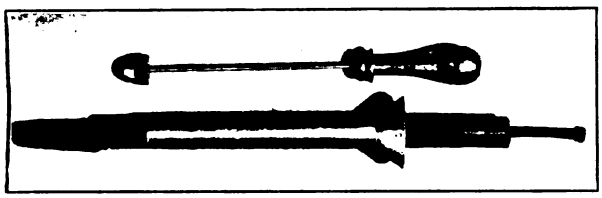
Conceiving the idea that cold applied to organized rectal stricture would cause relaxation, while freezing rectal cancerous tissue would cause necrosis, the author improvised the following means of application.

Carbon dioxide snow is obtained by the usual procedure of allowing the gas to escape from a tank into a pocket of chamois. A rubber finger-cot is filled with snow thus obtained. A thread is tied around the free end of the finger-cot placed over the projection of a retaining catheter, in such a manner as to allow the escape of gas from the melting snow through the catheter. The catheter is inserted into a piece of rubber tubing, the diameter of which is such as can be inserted into a proctoscope, with the filled finger-cot projecting.

The application is made by inserting the proctoscope, withdrawing the obturator, and plunging the filled finger-cot into the strictured area. The proctoscope can then be removed, leaving the rub-

ber tube with the catheter in place, thus providing a means for the gas to escape without causing damage, as rubber is a non-conductor of cold.

Thus we have an agency, 109° F. below freezing, that can be applied to the exact location desired in any portion of the rectum, and moreover the extent of freezing can be exactly regulated, as after the primary application the zone is that of five minutes duration, the next eight, the next eleven, and the next fifteen. Apparently the fifteen minute zone is the limitation of the effects of one ounce applications of the snow. These zones are definitely recognized owing to the fact that the applied finger-cot adheres till the snow melts.



A proctoscope with obturator replaced by a piece of rubber hose. Projecting from the hose is a finger-cot filled with carbon dioxide snow. Passing through the hose is a catheter attached to the finger-cot.

The remarkable and pleasing part is that the procedure is not only painless during application, but the after effects are without pain or discomfort. A serous exudate oozes during the twenty hours following freezing. There is no sloughing of tissue where applications have been made intermittently at fifteen minute intervals. The tissues simply relax and change from hard fibrous to soft elastic consistency. Where freezing occurs the tissues begin sloughing within a week or ten days. Granulations begin in two weeks.

Later a detailed report of specific cases thus treated will be forthcoming. However, one can state that in carbon dioxide we have an agency which will relax organized rectal stricture quickly, pleasantly, and safely; and which will destroy rectal cancerous tissue painlessly, and the destruction will be followed by absence of pain and discomfort.

605 Hollingsworth Building.

A PLEA FOR THE STANDARDIZATION OF OBSTETRICAL PROCEDURES IN OPEN HOSPITALS.*

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It is the object of this paper to present tested obstetrical procedures as a basis for discussion, with the hope of reaching an agreement as to the best methods to be adopted in the treatment and care of parturients in hospitals extending the privileges of the use of their wards to the medical profession.

Physicians vary in their ideas as to the preparation, the conduct of labor, and the after-care of the parturients, resulting in a variety of procedures, a complexity of maneuvers, and loss of efficiency in the professional management of patients.

*Read at a meeting of the Clinical Society of the Bronx Maternity Hospital, October 25, 1921.

Is it possible in open hospitals to adopt plans of procedure which will safeguard the mothers and their babies and at the same time standardize and simplify the professional care of the patients?

The subject will be considered under the following divisions: (a) Antepartum history; (b) preparation of the patient; (c) the management of labor; (d) care during the puerperium.

The management of the more common complications and emergencies as they may occur during any of the above periods will be briefly considered. I will refer especially to such emergencies and complications where the attending obstetrician cannot wait until the arrival of a consultant, but must work speedily to guard the interests of the mother and child.

(*a*) *Antepartum History.*—I take it for granted that no physician in these times fails to realize the importance of knowing the history of his obstetrical patient, including a knowledge of the age, para, results of previous pregnancies, measurements and deformities of the pelvis, the presence or absence of toxemias and specific infections, and whether there are any pathological conditions of the vital organs. Such a history ought also to convey the information whether there were any uterine hemorrhages during pregnancy, whether the existence of a placenta previa is suspected, the position of the child in utero, and the probable date of full term.

In the majority of cases the patients arrive at the hospital long before their attending obstetricians. It is of vital importance to the patients as well as to the reputation of the hospital, that the resident surgeon, who is the first to come in contact with these patients, should be armed with a complete knowledge of the condition of each case, that he may intelligently guard the patient until the arrival of her obstetrician. I therefore maintain that it is of the greatest importance for an open hospital to have deposited with it a history of each case, and to be furnished with important additional information at definite intervals, until the arrival of the woman at the hospital.

It is an established rule at the Bronx Maternity Hospital to notify the physician immediately upon the arrival of his patient. Occasionally the physician is not in his office to receive the message, and quite an interval may elapse before he learns that he is wanted. Under such circumstances not only is it important that the hospital possesses a history of the case, but it is at times vital for the patient that the resident surgeon shall have the authority to make an examination. In this last procedure the resident surgeon will be guided by the history of the patient and her condition while waiting for the arrival of her physician.

(*b*) *Preparation of the Parturient.*—The preparation of the parturient is the first important step in the management of labor. Fortunately the great majority of obstetricians agree as to the procedure of this step. Upon her arrival at the hospital, she should receive a warm shower bath, her bowels should be cleared by a soap-suds enema, the hair about the vulva should be clipped or shaved, the vulva and the surrounding parts should be scrubbed with tincture of green soap and washed with sterile water, her urine should be drawn off by a rubber

catheter for examination, and the vulva should then be covered with a sterile pad held in place by a narrow abdominal band. The patient should be put to bed until the first examination is made.

(*c*) *The Management of Labor.*—The aims of the obstetrician shall be to deliver a living baby, to avoid unnecessary suffering of the parturient, and to eliminate all procedures that tend to endanger the health of the mother and child.

One cardinal rule that all of us have learned is to reduce the number of vaginal examinations to a minimum, and to make only those examinations that are absolutely necessary to inform us of the progress of the case. The majority of the authorities preach against the making of any vaginal examinations. No argument can be advanced against such preaching. Many of us, however, find in actual practice that we are compelled to make vaginal examinations to assure ourselves of existing conditions. I dare say that I cannot see any greater danger in making a vaginal examination than going into the peritoneal cavity, providing that we observe careful aseptic precautions. There are men who practise the delivery of their cases by intrauterine version. I have yet to be convinced that the percentage of morbidity is greater with these men than with those obstetricians who argue against vaginal examinations.

I do not believe that it is the best practice to compel a woman to lie in bed during the entire period of the first stage of labor. The patient should be allowed to change her posture from time to time to reduce the irksomeness of this—the longest—stage of labor.

Quite frequently we meet with parturients whose cervices refuse to dilate after many hours of intense pain. Unless we are assured that the patient is making normal progress in the dilatation of the cervix, we are not only justified, but I believe it is our duty to administer a hypodermic of morphine and atropine to relieve her of needless suffering and to hasten the softening and dilating of the cervix.

Occasionally we meet with patients who have gone into labor and who have even ruptured the membranes, but have slight and ineffective pains. I believe in this class of cases we ought to administer a good dose of castor oil followed with ten grains of quinine. The practice of administering in these cases even small doses of pituitrin ought to be prohibited. If after a fair trial, and in spite of continued strong pains, the cervix refuses to yield, I believe one is justified to resort to manual or mechanical dilatation.

At the completion of the first stage of labor, many of us are tempted to administer a hyperdermic of pituitrin to hasten the expulsion of the child. I fear this practice for the effect it may have on the baby and for the reason that it may cause a premature separation of the placenta or rupture of the uterus. All of us have noticed brilliant results from the administration of this drug, and we must admit that in many instances the period of suffering has been considerably shortened. But all of us must also confess that at times, because of the administration of this drug, even in small doses, we have presented the parents with an asphyxiated baby. Should the parturient begin to show symptoms of inertia, I believe it is preferable to apply forceps and extract the child.

The obstetrician is frequently confronted in the second stage of labor with quite a different condition, causing a retardation of the birth of the child. The patient will have strong pains, but the head will be pounding tediously for a long time against a rigid perineum and an unyielding vaginal outlet. Under such circumstances the life of the child is endangered and the parturient becomes exhausted and is exposed to a high morbidity and possibly future invalidism. The obstetrician should not delay matters, but he should perform an episiotomy, apply forceps, and deliver the child.

It is not intended in this paper to review the many abnormalities that may occur in labor and where the expert's services would be preferable. There is one abnormality, however, which occurs in about 30 per cent. of all obstetric cases, and because it frequently terminates favorably, the general practitioner feels he should handle it without outside assistance. I refer to the occipitoposterior position. No doubt in the majority of instances anterior rotation takes place and the child is delivered spontaneously. But this happy termination frequently occurs only after prolonged suffering of the parturient and after considerable damage to the soft parts have been done, which may result in tearing the levator muscles, loosening and eventually prolapsing the bladder and rectum, causing the woman great misery, and exposing her to the need of a future operation. Occasionally anterior rotation will fail to take place, and the parturient is exposed to even greater danger.

Some one has truly stated that more women become invalids and more children die as a result of the occipitoposterior position than from any other obstetrical abnormality. I believe that an attitude of noninterference in cases of the occipitoposterior position, to say the least, is fallacious.

Knowing the dire results that will happen to many mothers and children if we adopt a policy of waiting for the head to rotate anteriorly, it behooves the attending obstetrician to apply his knowledge and skill, and either transform the position manually, or rotate with forceps and extract, or deliver the child by podalic version, with the mother in the semi-Walcher position. A forceps operation is perferable when the head is well engaged, and a version should be considered when the head does not readily engage and the membranes are intact or have only recently ruptured. I believe that by adopting these procedures we would reduce the morbidity of the mother and give her a better chance of having a living baby.

Two abnormalities occasionally occur, when the head is already born that may terminate seriously for the child. One of the complications is to find that the cord is wound around the neck. This condition, if permitted to persist, may result in strangulation of the child, rupture of the cord, or premature separation of the placenta with the resultant hemorrhage. When confronted with such a condition, the obstetrician should not temporize. If the cord is loosely wound around the neck, it may be slipped over the head. But if the cord is tightly wound around the neck, and the skin of the face is

puffed and livid, a condition of imminent danger to the child, the cord should be rapidly clamped in two places and cut between.

The other complication that the obstetrician may be confronted with after the head is born is an arrest of the completion of delivery, due to large shoulders. Only recently I was called to the hospital to complete the delivery after the head had been out for an hour an the baby was asphyxiated. I believe that a good procedure in such a complication is to make a median episiotomy, push back the posterior shoulder and deliver the anterior shoulder. The remainder of the delivery is then an easy matter. I believe that the child in the case referred to would have been born alive had this procedure for the delivery of the shoulders been followed immediately after the birth of the head.

Cases complicated by breech presentation are also in a group that the majority of the general practitioners feel they can handle without the assistance of specialists. While many of these deliveries terminate spontaneously, still I mention this group for the dread that many of us entertain regarding the delivery of the shoulders and aftercoming head. I find that a convenient and helpful procedure is to place an obstetrical gloved hand into the uterus and bring down both legs. In case the breech is well engaged, I make an endeavor to push the child up, grasp the legs, flex them and bring them down. In the remainder of the delivery I follow the suggestion made by Dr. Irving W. Potter in his versions. I deliver the anterior shoulder, rotate the posterior shoulder anteriorly and deliver that. I then grasp the legs in an upward horizontal position, milk out the mucus from the throat, place two fingers of the other hand into the mouth of the child, and flex the head. While extracting the baby, an assistant should press down gently upon the vertex from above. Before commencing delivery of the breech, the bladder should be emptied, the cervix should be fully dilated, the vagina should be ironed out and greased with a solution of green soap, and the woman placed in the semi-Walcher position.

In the management of the third stage of labor at the Bronx Maternity Hospital we found that it was very beneficial for the patient if we administered to her a hypodermic of .5 mil. of pituitrin immediately after the birth of the child. This procedure minimizes the oozing of blood during this stage, shortens its duration, and acts as a prophylactic against postpartum hemorrhage. We should not assume an attitude of duty well performed until the placenta and the membranes are out of the uterus, the organ well contracted, and the patient safe and comfortable in her bed.

In case of delay in the spontaneous delivery of the placenta, it is wisdom to follow the teachings of all authorities, not to attempt forcible expulsion until we are certain that it has completely separated from the uterine wall. How long we should wait before attempting manual separation and extraction of an adherent placenta is a debatable question. Cases have been reported where the attendants waited from twelve to twenty-four hours with the hope that the placenta would be delivered spontaneously. I fail to see what we have to gain by waiting more than one hour from the termination of the second stage of labor, and we should not wait at all the moment there is evidence of a partial separation of the after-birth accompanied by an alarming hemorrhage. However, it is well to remember that manual separation and extraction of the placenta is fraught with great danger, and that we cannot exercise too much caution in our efforts to prevent infection or rupture of the uterus.

By following the methods here outlined for the management of the third stage of labor, and by administering another hypodermic of pituitrin if oozing of blood is very profuse after delivery of the placenta, the dangers of postpartum hemorrhage will have been minimized. However, a hospital should always be prepared with the necessary solutions, packings and instruments to cope with such an emergency. You will readily agree that in order to make the hospital efficient in its efforts to serve the obstetrician in such emergencies, the operating-room nurse should know just what paraphernalia we would expect her to have in readiness. It is important, therefore, that we agree upon a definite and efficient method of procedure. The method advocated by Dr. DeLee, I believe is as efficient as any. If hemorrhage is due to a lacerated cervix, the same should be sutured. If due to retained placental tissue, the same should be manually removed. If due to retained clots, they should be expressed or removed manually. If due to lack of uterine contraction, massage the fundus and administer a hypodermic of aseptic ergot. If the hemorrhage is not fully controlled, administer a hot intrauterine douche of 0.5 per cent. lysol solution at 120° F. As an additional precaution, pack the uterus with lysol-gauze, 0.25 per cent. strength, saturated with Merck's sterilized gelatin. This tampon is to be removed at the end of twenty-four hours. Thirty minutes should be consumed in its removal. To combat the anemia, an assistant should simultaneously administer one quart or more of saline solution at 115° F., preferably in the subcutaneous tissue of the breast. For the shock administer a hypodermic of camphor oil. The patient should be placed in bed, surrounded with hot-water bottles. The foot of the bed should be elevated about two feet.

(*d*) *Care During the Puerpium.*—The efficiency of the professional management of women during the puerperium could be greatly increased to the advantage of the patients and to the credit of the hospital by the adoption of an intelligent and effectual rountine in at least the normal cases.

I have observed, for instance, that a nurse would look for six different cathartics for six different patients, because each had a different physician, none of whom agreed on the same cathartic. Similar situations developed in the treatment of threatened mastitis. In one ward where four women at one time needed attention to their breasts, for one was prescribed ice caps, for another massage and pumping, another had hot compresses, and the fourth received applications of solution of aluminum acetate. The patients could not understand why each one was receiving a different treatment for the same affection. Had the physicians agreed upon an efficient and definite plan of treatment, there would not have been any embarrassment for some of them,

the mothers would not have been in doubt as to the propriety of the methods employed, and the nurses could have used the time they spent in various complex maneuvers to the benefit of the rest of the patients under their care.

The management of the puerperium is as important as the proper management of labor and should be based on scientific principles. Physicians of a community sending in obstetrical cases to an open hospital ought to be able to agree on a standard and efficient method of treatment for women during the puerperial stage.

This subject will be considered here under the following headings: (1) the bladder; (2) the bowels; (3) the breasts; (4) the vulva; (5) the diet; (6) posture; (7) visitors; and (8) general care and attention.

The Bladder: The bladder having been emptied during the second stage of labor, if that stage has been of short duration, no attention need be paid to this organ before eight hours after delivery. However, if the second stage has been a protracted one, the obstetrician should empty the bladder after delivery of the placenta. If this procedure is followed we will find that there will be better contraction of the uterus and it will aid in the prevention of postpartum hemorrhage. The parturient should void every eight hours. If she fails to do so catheterization under strict aseptic precautions should be done. Should catheterization have to be done a number of times, it is advisable to administer urotropin two or three times daily.

The Bowels: Dr. Herbert M. Little of the Montreal Maternity has this to say: "The fact remains that patients who do not have purgatives (administered to them during the puerperium) run a much smoother clinical course. To those in charge of clinics. I would say, try this method if for no other season than the lessening of the amount of care required by the normal case and the resulting increased time of the nurses for the care of those patients who are seriously ill." Dr. DeLee of the Chicago Lying-In Hospital, prefers the administration of castor oil on the second day. Unless the patient complains of distress and desires a cathartic, I believe we ought to make it a standing rule to administer a dose of castor oil on the third day after delivery.

The Breasts: Eight hours after delivery the breasts should be washed with a saturated solution of boric acid and dried with sterile gauze, followed by the application of a sterile gauze pad and of a loose breast binder. The child should be applied to the breast twelve hours after delivery. The nipples should be washed with boric acid solution, applied by means of sterilized pledgets of cotton on toothpicks, both before and after nursing. A pad of sterile gauze should be applied to the nipples after nursing, which is to stay on until the next nursing.

I have found that an effective method of treating cracked nipples is to apply to the raw areas a solution of 1 per cent. silver nitrate, and to cover the nipples with lead nipple shields.

In painful distention of the breast and in mastitis, the best routine treatment has been found to be as follows: Restrict the fluids, administer a dose of epsom salts, lift up the breasts and apply to them a tight binder. The breast should be covered with ice bags, which shall be removed after it returns to normal. All authorities condemn massaging or pumping of the breasts. When pus has formed, the only treatment then, of course, is incision and drainage.

Vulva: The vulva should be washed regularly after each urination and defecation, and more often if the lochia is very profuse. For this purpose it is best to use sterile water to which has been added lysol to make a 2 per cent. solution. The vulva and perineum should be kept scrupulously clean when sutures are present.

The Diet: A routine diet should be agreed upon, and we should omit all foods that have proved to be injurious to the parturient. On the first day fluids only should be given; a soft diet shall be given on the second and third days; and a full diet should be instituted on the fourth day. The following foods ought to be omitted during the first week of the puerperium: acid fruits, because they may produce colic in the baby; potatoes, peas, lentils, and beans, because they may produce flatus and extreme distress in the mother; high spiced foods should be omitted throughout the puerperium, because they throw an additional burden on the kidneys. Women suffering from nephritis ought to be limited to a milk diet until the urine shows marked improvement.

Posture: Unless a parturient has gone through a major obstetrical operation, there is no particular reason why she should be kept on her back for more than two hours after delivery. From the first to the fourth day her position should be carefully changed from the back to the left side or to the right side. On the fourth and fifth days she should be propped up at intervals, and especially during meals, and also for micturition and defecation. She may be allowed to sit up at intervals from the sixth day, and is to be allowed off the bed on the ninth or tenth day. I believe that this management of posture during the puerperium is conducive to better drainage, greater activity of the bladder and bowels, a greater feeling of well-being, and prepares the patient more rapidly to get off the bed and to leave the hospital on schedule time.

Visitors: The problem of allowing visitors seeing parturients has always been a troublesome one in hospitals. Women during the puerperium are not only in great need of sleep during the night, but they should be allowed to have a nap during the afternoon. I believe also that it is a great burden on the nervous system of a parturient to have to entertain visitors for long periods during the day and evening, and is not conducive to a full and rapid recovery from her recent ordeal. The fact that a woman occupies a private room should not carry with it a license for her to receive visitors during all hours of the day and night. We would do the parturients more justice if we would limit the visiting period of even private-room patients to a maximum of four hours a day.

General Care: Not so long ago there was doubt in the minds of obstetricians as to the real value of the abdominal binder. To-day many of us are of the opinion that the binder should be applied soon

after labor is completed, mainly to relieve the parturients from the feeling of abdominal emptiness, and also for the purpose of steadying the uterus. I believe that the binder also aids the involution of the uterus and minimizes the chances for postpartum hemorrhage. However, when the abdomen becomes distended with flatus and the parturient feels distressed, we should loosen or remove the binder entirely.

For refreshing the parturient, she should receive a 25 per cent alcohol rub daily, and she should also receive a cleansing sponge bath at least twice weekly. Attention should be paid to the patient's mouth and teeth daily, and the attending nurse should also look after the patient's hair toilet, and should be responsible for her tidiness and general comfort.

The parturient should be examined before she is discharged from the hospital to note her general condition and to be instructed how to take care of herself and baby. If the uterus is found to be retroverted, the obstetrician should correct the abnormality. If subinvolution exists, he should advise her in the use of hot lysol douches after the fourteenth day of the puerperium, urge a sufficient amount of rest daily, and perhaps prescribe small doses of ergot two or three times daily to favor involution.

In this paper I have not taken up the care of the baby, as this matter lies within the province of the pediatrician. The treatment of the cord, however, concerns the obstetrician. The majority of obstetricians are of the opinion that nothing but a plain sterile gauze dressing should be applied to the stump. I usually wipe off the cut end with a little alcohol and apply a dry dressing. In female children this dressing could be left undisturbed until the stump falls off, but in male children it may be necessary to change this dressing daily.

In conclusion, I wish to say that in order to realize any measure of standardization in open hospitals, it will be necessary for physicians who practise obstetrics to meet from time to time in their respective communities, and together with the hospital authorities discuss methods of technic of delivery and care during the puerperium, to the end that patients may receive the benefit of advanced scientific knowledge, and at the same time make it possible to improve the efficiency of nurses caring for parturients, thereby reducing the morbidity and mortality of mothers and children throughout the country.

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POSTWAR OBSERVATIONS OF NEUROPSYCHIATRIC CASES.*

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ONE of the important problems concerning exservice men with which the Government has to deal to-day is that of the psychoneuroses. Since the signing of the armistice the number of neuropsychiatric patients has increased at such an alarming rate that considerable thought is necessary to provide for them the proper treatment and management. It is quite obvious to those of us who come in contact with these cases that for the most part we are not confronted by a "war neurosis," but rather by the syndrome belonging to the psychoneuroses of everyday life plus a compensation factor plus present public opinion that we are dealing with.

Comparison Between Types of Cases Immediately After the Signing of the Armistice and Present.—In comparing the type of cases received in neuropsychiatric hospitals during the war and those of the present day, we find a considerable difference.

At Hospital No. 30, Plattsburgh Barracks, N. Y., during the latter part of the war, there was a constant influx of neuropsychiatric patients. The etiological factor in 50 per cent. or 60 per cent. of these disorders was of a physical nature due to: (1) Over-exertion; (2) insufficient sleep; (3) lack of proper nutrition; (4) fever, influenza, etc.; (5) infections following wounds; (6) injuries; (7) dysentery. The remaining cases were distributed among the following groups: (1) The constitutional inferior type; (2) cases of unstable personality; (3) cases with epileptoid seizures; (4) with sexual perversion; and (5) the mental defectives and degenerates.

In order to secure data on these patients, a Social Service Department was established and through it information was obtained from the patients' parents, their former employers, the school, church and Red Cross or Social Service in their community. After careful observation, together with the above reports and their army records, we were able to make a fairly intelligent classification of the cases and this was always done as quickly as possible after admission.

There was a marked difference in the general attitude of the two groups. Those of the first one were all eager for discharge, did not wish a diagnosis of psychoneurosis attached to their records, readily complied with requirements, took up work in the Vocational Department, and showed a definite interest in arrangements for future work on the outside and seemed eager for responsibility, for instance:

CASE OF A. P.—Age 23; enlisted in January, 1918; former occupation, clerk. Was in camp on this side for three months; during most of this time did clerical work, consequently received but little exercise. Arrived overseas, and immediately went under intensive training. After five weeks orders came to move to the front. While at the telephone, repeating orders, he dropped to the floor in an unconscious condition. As far as could be ascertained there was no convulsive seizure. He was sent to a hospital and was unable to join his company. After a period of three weeks he was discharged back to the outfit at the front. During the following seven weeks he was under fire continuously, lost considerable sleep, and received food and water irregularly. One morning, while waiting to go "over the top," he dropped in an attack similar to the previous one. Was returned to the hospital and had several similar attacks during a period of two months.

He was discharged to a rest camp, and after remaining there a few weeks was again ordered to the front. The evening before departure, while at a moving picture show, he had another fainting attack, remained unconscious several minutes, did not injure himself, and from reports this attack did not resemble a typical epileptiform seizure. Shortly after this the patient was evacuated back to the United States under the diagnosis of psychoneurosis hysteria. This was the last

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attack up to date of discharge from army and for several months subsequently.

After this I lost track of him. While at Plattsburgh his fatigability disappeared, appetite returned and he gained weight, took up work at vocation school, and after several months was discharged as recovered with no disability.

Those in the second group were more unstable and difficult to treat, were more self-centered, usually complaining about their condition, complaining of no treatment, the food, and the hospital conditions in general. They were more interested in the origin, symptoms, and mechanism of the disease than the cure.

CASE OF A. F.—Age 25. The patient quit school at the age of 15, after finishing the grades. Obtained a position, worked about eight months, changed to another place and remained there about a week; quit and tried another position. He continued to jump from place to place until finally he secured an easy position working in a "movie" house. Remained here until he was drafted in the army. Arrived in Camp Jackson, S. C., on August 3, 1918. Received typhoid inoculation on the 5th of August, and immediately went to the hospital. Remained there three days and was returned to duty. He states he was in bad condition. He refused to work, claiming it was too hot and that he couldn't stand the heat. They then transferred him to the motor school. He got along fairly well here until cold weather set in. Then he stated it was too cold to work. He had been working with some heavy trucks and he claimed this had caused hemorrhoids. He was then put on light duty driving a touring car. Was finally discharged February 13, 1919. Returned home and in three days claimed he had considerable trouble with his hemorrhoids.

In a recent survey of 520 cases at the National Sanatorium in Marion, Ind., I found approximately 85 per cent. were of the second type. They lacked ambition, were indifferent and discontented, complained about everything, and showed absolutely no respect for rules or regulations. A few of these patients had made a complete circuit of every Government hospital in the United States and a large percentage had made eight to ten of them, while very few showed this to be their first admission since discharge. Several of the patients admitted they would try out a hospital for a while, then request their discharge, claiming their home address wherever they wished to go and thereby receive transportation. As a rule, very little thought was ever given by these patients as to the cure of their disease; the question uppermost in their minds usually was, "Is it total permanent disability?"

The compensation question is the predominant factor in this group. It seems to be the understanding of the public in general that all ex-service men are entitled to compensation on entering a hospital. But a most undesirable effect is produced on this type of men by the condition under which compensation is granted—an effect which is at once evident. I do not wish to convey the idea that there is a definite type of this compensation neurosis but rather there is a condition which occurs in the individual with a fundamental psychopathic make-up, whose adjustments have always been made with more or less difficulty, in both the social and industrial world.

CASE OF W. W.—Age 31; occupation, coal miner. Entered with a diagnosis of Ménière's disease; apparently got along fairly well before he was drafted in the service June 30, 1917; developed influenza in September, 1918; was ill for five weeks. After his discharge from the hospital he got along fairly well for about a year. One morning while standing at attention during reveille the patient fainted. States he had a pain underneath the skin portion of the left ear, over the mastoid process. This spell lasted about ten minutes. He knew everything that was going on; vomited afterward. At this time did not have a ringing in his ear. Has not had a spell like this since, and does not worry about not having another attack. States that at one time the left side of his body was completely without feeling. On physical examination a tender area back of left ear about the size of a quarter was found. Denied ever having had pain in the ear. There was a bluntness of sensation on the left side, ending at the median line. Has complete pharyngeal anesthesia; could not distinguish degrees of heat or cold on the left side. Astereognostic sense was dulled, also on the left side.

After several careful examination and close observation, this patient was called into the office and informed that in the opinion of the staff he was not suffering from Ménière's disease and that it would be possible for him to take up Section II training of the Vocational Board.

He became greatly agitated and indignant, informing me that the staff did not know what they were talking about, as some thirty or forty physicians, all specialists, had told him he was suffering from a very rare disease, seldom being found in any person.

The patient was very eager to retain this diagnosis because when he told people on the outside that he was suffering from a very rare disease it made him the center of attraction. Also it puzzled the physician and consequently his stay in the hospital was indefinite.

The majority of these men should really not be hospitalized. Because of existing regulations, backed up by public sentiment, they are all sent to institutions. However, this being the case, when they are once in the hospital every effort should be made to work up their cases, to treat them and put them in training and to discharge them as quickly as possible. Patients should never be given the opportunity to acquire the habit of living in an institution.

The following plan is suggested for management and treatment:

Management and Treatment.—(1) Discipline, (2) segregation, and (3) atmosphere.

1. *Discipline:* First, before any attempt is made to treat these cases, discipline should be maintained—not strict military discipline or discipline with the idea of punishment, but control through a sense of loyalty.

2. *Segregation:* In order to obtain the maximum therapeutic results, a careful separation into groups should be made as follows: (*a*) Admission Service: This service should not include treatment of any kind but should be merely a service where the patient's history is taken; a complete physical, neurological, laboratory, and dental examination worked up, and a tentative diagnosis made for the purpose of transferring him to the proper group.

The attitude of the patient is formed on this service; therefore, it is imperative that he obtain an optimistic viewpoint of the institution. No patient should remain on the admission service longer than two weeks, because (1) usually after this length of time he begins to spread propaganda to the incoming cases; (2) it is necessary to enter upon therapeutic measures as quickly as possible; (3) one must impress upon the patients that the hospital is not a permanent home, but a place for treatment.

and that it will not be necessary for them to remain over a long period of time.

(*b*) Thereapeutic Service: Immediately upon the patient's arrival in this service, an individual treatment card should be issued, which will keep him occupied each hour of the day. The outline prescribed should include rest, light work, exercise, electrotherapy, hydrotherapy, psychotherapy, and occupational therapy.

All acute conditions should be cleared up.

Keep him busy and watch his work in the occupational class carefully. If any initiative or ambition for work has been shown at the end of two weeks, transfer him to the vocational service; if, on the other hand, he is not cooperating and it appears that he may remain over a period of three months, transfer him to the chronic service. These men are very suggestible; therefore, to give those who are making an honest effort to adjust an opportunity to do so, it is necessary to be very careful of their surroundings. For instance, on a ten-bed ward was a patient with hysteria who stammered, and along with this he was the ward "clown." Within ten days three other men were stammering. One was a neurological case with a shrapnel wound on the right side of his head on the upper half of the parietal bone which caused a partial hemiplegia of the left side. The second was a toxic goiter case. The third was a veterinary surgeon who was suffering from an anxiety neurosis.

The patient with hysteria has made a good recovery, does not stammer any more, and is out in training; the other three still stammer.

(*c*) Vocational Training: Here the patient has no more rest hours during the day; the dormitories are kept locked. Immediately make an effort to impress him with the fact that his stay in the hospital is very short.

Individual attention, close observation, and encouragement are necessary to obtain the best results in vocational work. The idea must prevail that this work is for the individual benefit of patients. If it is impossible for the hospital to furnish the training an individual desires, work may be taken up that will have a close relation to his desired ambition. A patient who is capable of working six hours a day over a period of two to three months is ready for discharge to the Federal Board for Vocational Training.

(*d*) Chronic Service: This service, as you have noticed, is the "dumping ground" for the whole institution. Various industrial shops should be established, dairy and agricultural projects. Put all men to work who are able. Keep them separated from the acute cases.

3. *Atmosphere:* "Cure" should be the keynote, the constant topic of lectures to the nurses, attendants, and patients.

Each man should be impressed immediately upon admission that his case is curable or he would not have been sent to this institution.

Also establish a universal conception that the institution is not a permanent home for anyone.

Summary.—1. We are dealing with a nervous condition among ex-service men which is the psychoneurosis of prewar times, plus a "compensation" factor, plus public opinion.

2. By far the majority of neuropsychiatric patients today have a predisposed neurotic background; while immediately after the signing of the armistice over 50 per cent were due to a physical cause.

3. Strict discipline, together with close cooperation of nurses and attendants, is indispensable for success in treatment.

4. Segregation is essential to obtain maximum results.

5. Hospitalization is not advisable in a great many of these cases.

6. When they are hospitalized, they should not be retained over a long period of time, but should be discharged to vocational centers.

THE EXTERNAL USE OF DIATHERMY IN CASES OF IMPACTED URINARY CALCULI.

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VARIOUS operative and mechanical procedures have been resorted to in cases of impacted urinary calculi. The following cases I believe are worthy of reporting because of the use of diathermy, other than by the cystoscopic route, in facilitating their expulsion.

CASE I.—K. C., male, painter by occupation, age thirty-six, referred by Dr. A. S. Berow of Brooklyn. Was operated upon for psoas abscess twenty years ago—otherwise always enjoyed good health. Married fifteen years—never had any children. Venereal disease denied by name and symptoms.

The present illness dates back to six months ago, when the patient was operated upon for inguinal hernia. The operation was followed by some acute pulmonary condition, which subsided in the course of five to six weeks. He then began to complain of a dull ache in the left lumber region, burning at the end of urination, increased frequency and urgency of urination, and nocturia. The urine was very cloudy and patient was told it contained pus. The radiological examination of his urinary tract failed to reveal the presence of any calculi at that time. The subjective symptoms gradually diminished in severity until, on the day prior to seeing me, the patient was suddenly unable to empty his bladder completely, voiding but a few drops of urine every ten or fifteen minutes. Urination was accompanied by agonizing burning, but there were no colicky pains. Rectal examination disclosed a slightly enlarged prostate gland. Repeated attempts to catheterize the bladder resulted in failure. Even a filiform bougie met an insurmountable obstruction. Whatever urine the patient was able to dribble out was very turbid and contained a heavy trace of albumin. A microscopical examination revealed numerous pus cells and a few tubercle bacilli. Curiously enough, no red blood cells were found. Codeine and belladonna were administered with no relief of the symptoms. Another attempt on the following day to pass a filiform bougie was unsuccessful.

In the belief that the underlying process was a tuberculous lesion in the neck of the bladder, it was decided to resort to diathermy by employing the rectal electrode commonly used by urologists in conjunction with prostatic massages. The dosage was 750 ma., the patient being exposed for fully half an hour.

Immediately upon leaving the consultation room the patient was seized with excruciating pains in the rectal region, shooting down the body of the penis. There was a slight hematuria. The following day, on rectal examination, a very hard, round nodule, the size of a small dried-up cherry, was palpated in the region of the prostatic urethra. The filiform bougie encountered a very distinct, grating resistance.

It was evident that the patient had a calculus block-

ing the posterior urethra. Encouraged by the effect the D'Arsonval current had upon the passage of the stone along the urinary canal, he was given another similar treatment. The patient was seen again six days later and the nodule was found to be in the same place. The dosage was increased to 900 ma., and the length of exposure to forty-five minutes. Immediately following the exposure he began to experience acute pains in the rectum, accompanied by hematuria. The nodule could now be definitely palpated along the course of the anterior urethra, near the penoscrotal junction. With the aid of an endoscope, after preliminary cocanization of the urethral canal, the store was grasped by forceps and extracted. It was a uric acid calculus, somewhat oblong in shape, and having a rough mulberry-like surface, which would indicate its pelvic origin.

A few days later the patient developed an effusion in his right knee joint, undoubtedly tuberculous in nature. The subsequent cystoscopic examination revealed the characteristic tuberculous ulceration of the bladder in the region of the right ureteral orifice, which was retracted and presented a shelf-like appearance. The left ureteral orifice was surrounded by polypoid vegetations. The urine obtained from the right kidney was loaded with pus and contained a few tubercle bacilli. The urine from the left kidney contained a few white blood cells and no bacilli.

CASE II.—B. W., male, shipping clerk by occupation, aged twenty-six, referred by Dr. H. Cohen. The patient was operated upon two years ago for a urinary calculus impacted in the right ureter, after an attempt to relieve the obstruction by cystoscopic manipulations had proved unsuccessful. Prior to the operation the patient was sick for nine months, the condition being mistaken for chronic appendicitis, until an *x*-ray examination revealed the true nature of his illness.

The present illness began three weeks ago. The onset was sudden, with severe agonizing pains in the left lumbar region, radiating down to the left iliac fossa and to the end of the penis, accompanied by vomiting, frequent and urgent urination, and dysuria. The attack lasted four hours, the patient voiding very little urine at a time. The radiological examination showed a shadow of about one-eighth of an inch in diameter in the left ureter, just above its junction with the bladder. Altogether the patient had had ten attacks of colicky pains, each one necessitating the administration of hypodermic injections of morphine. The patient was cystoscoped and a catheter was left in the left ureter for twenty minutes. He had three such treatments at weekly intervals, without any relief.

The patient came under my observation during his last attack, which was especially severe, lasting about three hours. Hypodermic injections of morphine were of no avail. He passed very small quantities of bloody urine, which, in addition, contained a few white blood cells and a moderate number of granular and hyalin casts. He was exposed to the D'Arsonval current by having two lead electrodes, five by six inches, placed one posteriorly over the left lumber region, the other anteriorly over the course of the lower portion of the left ureter. The dosage was 800 ma., and the length of exposure was forty minutes. While still on the table, the patient was suddenly relieved of pain. He spent a restful night, and the following day found him free from all his symptoms. He voided freely, without, however, passing the calculus. The urine was practically clear. On cystoscopic examination a small ragged, spiky calculus was seen almost lodged in the left ureteral orifice, which was edematous and congested. By means of cystoscopic forceps the stone was dislodged and came out with the distending fluid through the sheath of the cystoscope.

CASE III.*—J. V. d. B., physician, age forty-two, married.

Previous History.—The patient had an attack of severe renal colic on the right side two years ago, but did not pass any stones at that time.

The present illness began suddenly with agonizing pain in the right lumbar region, radiating downward to the right iliac fossa and to glans penis, accompanied by nausea, vomiting and profound prostration. There was the usual increased frequency and burning on urination, and the urine contained albumin and numerous red blood cells. The radiological examination disclosed no shadows suggestive of urinary calculi. The attack lasted almost continuously for ten days with slight remissions and from four to five exacerbations each day, taxing the patient's endurance to the utmost and bringing about a state of complete physical and mental exhaustion. Numerous attempts to quiet the pain with morphine were fruitless. As much as one and one-half grains of the drug were given at a time. During this period the patient was cystoscoped four times and in each instance the finest filiform bougie encountered an impassable obstruction about eight cm. above the right ureterovesical junction.

The pain gradually subsided, but three weeks later the patient was again in the grip of his former torture, with pain, nausea, vomiting, and general prostration of no lesser severity. This time the patient was exposed to diathermy for fully one hour, 600 ma. of the current being used. This single exposure was followed by a state of complete relaxation and amelioration of all symptoms and on the following day the patient passed two ragged, spiky uric-acid calculi, each measuring about one-quarter of an inch in diameter.

Whether the use of diathermy actually aided the propulsion of the impacted calculi in these cases is, of course, problematic. One should be guarded against a coincidence. The brilliant results achieved by Buerger, who, in cases of urinary calculi impacted in the lower ureteral segments, dilates the ureteral orifices by using the D'Arsonval current in conjunction with olivary bougies, would indicate that diathermy either produces local tissue or circulatory changes which result in the removal of the obstruction, or acts directly on the unstriped muscle fibers. The exact nature of these changes is still obscure and requires further extensive study. At present, however, very little is known about it.

It may, however, be of interest to note in future the effect of diathermy, applied externally, in cases where impaction of urinary calculi is high up in the ureters or in the renal pelvis, and where the routine cystoscopic procedures fail to bring the desired results.

It must be added, that in cases associated with congenital stenosis of the ureteral orifices, or where the urinary calculi have attained a size which renders their passage a matter of mechanical impossibility, it is not conceivable that diathermy, however applied, could supplant such operative procedures as ureteral meatotomy, dilatation, ureterotomy, etc.

53 ST. MARK'S PLACE.

*The author wishes to express his appreciation to Dr. J. Van den Berg for his courtesy in permitting the report of his case in this article. Diathermy was used at his own suggestion.

Neosalvarsan by the Mouth.—A woman with syphilis took neosalvarsan internally, no reason being given for the act. She had syphilis of twenty-five years duration but the drug of which 1.8 gm. were ingested within six days did not apparently have any effect upon it. There was a short interval of colicky pain and diarrhea but no further symptons of arsenicism. The patient had been infested with the *oxyuris* and the complete disappearance of these worms from the stools was ascribed to the medicament.—*Schweizerische medizinische Wochenschrift.*

Intratracheal Injection of Antipneumococcus and Antistreptococcus Serum in Influenzal Bronchopneumonia.—A Barcelona practitioner made injections of these sera directly through the wall of the larynx into the trachea. In five cases with grave outlook defervescence soon followed. In eight others the prognosis had been better and the subjects would probably have recovered of themselves.—*Transactions of the Barcelona Society of Biology.*

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THE CINCINNATI SOCIAL UNIT EXPERIMENT.

THE New York School of Social Work has recently published a pamphlet in which Mr. Courtenay Dinwiddie summarizes his experiences with the Cincinnati Social Unit. This unique and instructive social experiment was conducted for the purpose of demonstrating ways and means of arousing community responsibility and cooperation. The National Social Unit Organization selected as a suitable community for this experiment the Mohawk-Brighton District of Cincinnati, including a population of 15,000. The purpose has been to test the theory that the organization of a community, if it is to be democratic and effective, stimulating people most to meet their own needs, should be based upon the following principles: (1) The organization of the citizens of the community should be by sufficiently small primary units of population so that those living in each unit may have a general acquaintance with the problems, conditions, and personalities in that area, and so the elected representative of each primary unit may become, in the best sense of the word, a neighbor, familiar with the conditions and needs and responsive and responsible to the wishes of the other residents. (2) The organization of those who are serving the community because of special knowledge or skill, in a direct or an advisory capacity, should be with reference to units of population served, so that they may be more closely in touch with the representatives of the citizens and with the citizens themselves. (3) There should be an organic and coordinate working relationship between the representatives of the groups having special knowledge or skill for service to the community and the representatives of the residents.

No other part of the Mohawk-Brighton stands out more sharply than the "Block Worker" and the Citizens' Council, made up of the block representatives. The block worker is the representative of her own little block of neighbors. She is elected by the members of the Block Council, primarily as the spokesman of themselves and their neighbors in the affairs of the community. The block worker is a member of the Citizens Council, to voice the opinions of the residents of her block the link which brings the expert, nurse, physician, recreational worker, etc., and the average citizen into a real working relationship. Provision was made in the plans for committees of clergymen, physicians, nurses, business men, and other groups to cooperate with the Citizens' Council. In each of the services there were certain characteristics which distinguished the Unit methods from those usually followed elsewhere. For instance, the actual medical examination of the patients was conducted chiefly by physicians practising in the neighborhood. As a consequence the physicians were generally friendly rather than antagonistic, and such benefits as came from clinical experience, consultation, and study accrued to the whole medical group rather than to some medical expert brought into the district.

As a result of three years of community effort under this arrangement, and in spite of active political opposition, there is practically unanimous agreement among those who have made a study of the unit that it has increased the effectiveness of community service to an unprecedented extent, beyond what would be expected merely from the number of physicians, nurses, or other workers serving the district. It has made a generally recognized contribution to standards for nursing work and to the humanizing of the touch of the person who is serving the needs of his fellowmen. Facts that speak urgently in favor of the plan are the lowering of the sickness and death rate in this district over that of any other portion of the city. The educational value of the Unit has been what has impressed some observers, while no critic of the Unit has questioned the value of the genuine spirit of neighborliness that has been increasingly evident in the Mohawk-Brighton District. An outstanding feature of the experiment was that the people of Mohawk-Brighton have been more largely in control of community affairs than elsewhere, but not through mass action or through ill considered decisions as to policies which were ill understood; it has been the orderly process of a well informed group of citizens who have expressed their judgment through their representatives in a way that has greatly increased the value of community undertakings. The Unit plan is well worth studying as a distinctly progressive move in social organization for community betterment.

NUCLEINIC ACID AND ITS USES.

THE nucleinic acids are constituted by an atomic complexus as yet incompletely known, and are found in the viscera in the form of nucleins or pure nucleinic acids. They contain large amounts of phosphoric acid, purine and pyrimidine bases, and frequently carbohydrates. Vernoux has shown that there exist a large number of pure nucleinic acids which differ in their physiological action and chemical make-up. Neumann, studying the nucleinic acids of the thymus, distinguished two varieties which he considered isomeric, but Kostytschew thinks that these acids

are impure and he in turn extracted two new acids: nucleinic acid alpha, a white powder insoluble in cold water, slightly so in hot water; nucleinic acid beta, a red powder giving a red solution in hot water which becomes colorless by the addition of an alkali. These acids are not isomeric. Leprince believes that there is but a single acid, and Schmiedberg has given the formula: $C_{35}H_{55}N_{14}O_{11}2PO_5$. It is an organo-chemical substance constituting each cell nucleus and when combined with protein forms the nucleins. The experiments of Ascoli have shown that it is impossible to find a body richer in assimilable phosphorus than nucleinic acid; it contains 9.63 per cent. According to Paul and His this acid is an energetic solvent of uric acid, therefore it has been proposed as a remedy for gout, and we now understand why arthritics who eat sweetbreads increase the percentage of their uric acid, the thymus being an organ richest in nucleinic acid. In a work on the intraorganic changes, Loewi showed that the ingestion of calf's thymus decreased the elimination of urea and he maintains that it is nucleinic acid which constitutes the primordial element of the protoplasma on account of its content of organic phosphorus. Protagon, the lecithins, neurine spermine, choline, etc. are merely products of disassimilation. Nucleinic acid remains in the cells—especially of the liver—as a reserve, similar to glycogen, thanks to which the albumin from the food is retained, assimilated, and economized. Loewi's experiments on himself also showed that, when ingested, nucleinic acid is absorbed and fixed in the tissues without decomposition, the body therefore utilizing it directly. Consequently, it is the typical economical food-stuff.

Since Müller's experiments, it is known in what great amount nitrogen and organic phosphates are eliminated by animals in a state of inanition and that nucleinic acid can prevent this elimination. Briefly, Loewi's conclusions may be given as follows: perfect absorption of nitrogen and phosphorus introduced into the body in the form of nucleins; retention of these three bodies deposited in the tissues; a considerable increase in the elimination of uric waste products derived from the food. The nucleins are readily obtained by placing nucleinic acid in the presence of the oxide of the metal that is to be added; thus the nucleates of sodium copper, lead, silver, mercury, and iron are produced, and Vergnoux has been able to obtain complex compounds with arsenic, namely, calcium nuclearsynate.

From all the properties enumerated the therapeutic use of nucleinic acid is clear. Its very constitution, easy assimilation and above all its richness in phosphorus explain its potency as a reconstituting agent. It has been especially successful in febrile tuberculosis, the adynamic form of pneumonia, and in serious cases of typhoid fever.

Experimentally, Vergnoux inoculated seventeen guinea-pigs with a homogeneous culture of the tubercle bacillus, and obtained the following results: The control animals died within six weeks after inoculation, while the other animals were fed with a daily dose of ten centigrams of pure nucleinic acid. These animals lived from one to two months after the death of the control animals. Another lot of animals were tested with the nucleinate of iron and one lived three months longer than the control animals. A fourth lot was treated with nuclearsynate of calcium, others with calcium nucleinate, and these survived the control animals five to six months. Soon after the injection of Koch's bacillus Vergnoux noted a phase of hypoleucocytosis, followed by an abundant afflux of polynuclears accompanied by large mononuclears with bilobate nuclei, powerfully toxicophagic. Finally, nucleinic acid is a powerful leucopoietic agent. The drug can be given intravenously, subcutaneously, or by mouth, but when given by the latter route the leucocytogenous effects are attenuated.

THE DIETETIC TREATMENT OF DIABETES.

THE subject of the fasting treatment of diabetes is still somewhat in the air, as to its evolution, definition, rationale, and permanent benefit. It is not uncommon to read an article in which some one of our founders of this treatment is ignored outright and such a one has appeared in *La Presse Médicale* for December 10, 1921, xxix, 99, in which there is only the barest mention of the Frenchman Guelpa, although the author, Cheinisse, is himself French. In certain American essays the name of Allen has been suppressed. A recent comment in the *Lancet* seems to imply that the French internists, despite the pioneer work of Guelpa, are not in touch with the advances in dietetics in Anglo-American literature. Probably the war was an important element in upsetting the solidarity of international *rapprochement* in this, as in other matters. So far as the introduction of fasting days into the dietetic treatment of diabetes is concerned, this goes back to Cantani in 1870. Then at intervals the idea was developed by Naynyn and later by von Noorden, while Guelpa elaborated it still further. The merit of Allen, the American, lay in his experimental work. Any struggles for national precedence and priority had better be suspected, however, until the treatment can be shown to be truly curative of the disease.

Of recent writers Rathéry regards hunger cures as inferior to the merely strict diet of Bouchardat, whose name was once almost synonymous with the dietetic management of the disease, and the opinion has been sustained by the more recent statements of von Noorden. Attention is called to the fact that the Allen treatment is not a fasting regimen at all, for aside from the short fasts the aim is to get the patient as soon as possible on a normal diet. Labbé looks on the fasts as intended to abort acidosis but not to cure diabetes. Bouchardat said to

the diabetic, "eat as little as you can," and no fasting treatment could go further.

During the war Albu often saw German diabetics recover spontaneously under the short rations of the period, irrespective of the quality of the food. The latter was protein-poor and fat-poor and must have consisted chiefly of carbohydrates, although largely in the form of vegetables. The latter are well adapted for the management of diabetes because there is usually good tolerance for vegetable protein, and while the vegetables with low carbohydrates can be taken as they are, the content of those with high carbohydrate can be reduced materially by repeated cooking (as in the so-called thrice boiled vegetables). This cooking is otherwise undesirable for it deprives the food of its flavor and extracts its mineral matter and vitamines. It is therefore better to use vegetables like green peas and beans, with one boiling, in place of thrice-boiled articles of higher carbohydrate content. In addition to the good tolerance by the diabetic of oatmeal it has been learned that cereal wheat and barley foods are also well borne; so that at present we are faced by the paradox that the once banned cereals and vegetables are now the diabetic's mainstay, while the meats and fats which were allowed freely by Bouchardat are now tabooed. The explanation can only be that the ideal diet consists first of reduced quantity and second of special classes of foods which the diabetic in general is able to handle.

The Toxicity of Nicotine.

Nicotine, an alkaloid with $C_{10}H_{14}A^2$ as a formula, may form crystallizable salts witth acids. The percentage of nicotine in tobacco varies from 1.15 to 9. Snuff contains a goodly proportion of ammonia and acetic acid. The experiments of Claude Bernard with various toxic substances have shown that nicotine is a poison which, from the rapidity and intensity of its action, can be compared only with the most violent ones known, namely, prussic acid, atropine, and aconitine. No matter in what way nicotine enters the organism—hypodermically, ocular instillation, or intestinal absorption —one or two drops suffice to kill cats, rabbits, or dogs in a fulminating way. A horse is killed in a few minutes with eight drops. The general action of nicotine is that of a powerful stimulant of the brain and cord. The first symptoms noted are in the muscular system; convulsions, tremor, irregular contractions throughout the the body, ending in depression and paralysis. The cardiac beats are accelerated—paralysis of the pneumogastric—becoming irregular and ending in arrest when the heart itself is paralyzed. The blood pressure is raised and this phenomenon is frequently accompanied by intestinal tetanus and uterine contractions. The respiration, at first rapid, becomes very slow. Death results from paralysis of the bulb. The symptomatology of mild acute nicotine poisoning consists of headache and pallor, nausea, vomiting, epigastic pain, and diarrhea. The forehead and hands are covered with a cold perspiration; there is considerable weakness with muscular relaxation, general distress, tendency to syncope, weakness of sight, confusion of ideas, and decrease of the tactile sense. These symptoms usually disappear after the occurrence of several loose stools. It is to be pointed out that the statistical work carried out on the effects of tobacco among workers in cigar and cigarette factories shows that among the women employed tobacco has no untoward influence on pregnancy.

Simulation of Diphtheritic Croup by Tracheobronchial Adenopathy.

It sometimes happens in hospitals for contagious diseases that a child is admitted in a state of asphyxia with the diagnosis of probable diphtheritic croup. In such cases intubation or tracheotomy may be performed along with the injection of antidiphtheritic serum. It is justly urged that there is no time left for diagnosis and that every patient should be given the benefit of the doubt. In case the obstruction from whatever cause is above a certain level the operation gives relief, but it may be necessary to change the diagnosis from diphtheria to edema of the glottis or some other obstructive condition. In rare cases the operation of intubation or tracheotomy gives no relief and death occurs from suffocation as the result of compression of the trachea at a low level by some neoplasm. That tracheobronchial adenopathy can cause this confusion of diagnosis and resist any attempt to clear the air passages is apparent from a report of three cases by Tron in *Il Policlinico* for January 16, 1922, xxix, 3. All three cases ended fatally and autopsy revealed the presence of the lesions in question. In each an emergency intubation was performed on admission of the child (to the pediatric clinic of the University of Milan). In one history is mentioned the intravenous injection of serum. Only the failure of intubation to avert death by asphyxia led to the surmise of the true nature of the obstruction to breathing. There is no mention of tracheotomy following intubation. The fate of these children seems predetermined, for they as a rule are seen for the first time and autopsy shows a good general condition with the exception of the gland mass which compresses the trachea.

Diver's Paralysis.

This affection is very common on the Mediterranean coast where the business of diving has been carried on from time immemorial. A considerable modern literature has originated among medical men from Athens, Marseilles, Tunis, and other ports. A distinction must of course be made between ancient sponge fishers and modern armored divers. In an article by Lantieri of Lyons in the *Gazette des Hôpitaux* for December 31, 1921, xciv, 103, mention is made of cases of paralysis in the Greek sponge fishers who work along the Tunis coast. One case ended fatally in a man of 58 who had been diving at a depth of 30 meters and who was 1½ minutes in coming up. He was almost immediately seized with severe pains in the legs and two hours later showed paraplegia with persistent incontinence of urine. He died comatose 5 days

after admission. In another fatal case in a diver, aged 48, the depth was 26 meters. The ascent was slow and 15 minutes later pain of severe character appeared in the abdomen followed by paraplegia and urinary retention. Death took place on the 13th day after admission. Both these men developed huge sacral bedsores. Autopsy threw no light on the mechanism of these deaths. There was no increased tension of the cerebrospinal fluid. In patients who recover there is a history of paraplegia which may be flaccid or spasmodic, temporary or persistent. In order to prevent these accidents the depth should not exceed 25 meters, the duration under water should not exceed 30 minutes, and ascent should consume from a minute to a minute and a half in order to avoid too sudden decompression.

News of the Week.

Typhus Epidemic at Minsk.—According to a report just received by the American Relief Association, conditions at Minsk are shocking. Refugees are pouring into the city at the rate of 3000 a week, and typhus is increasing at the rate of 600 cases weekly. Medical stores are almost wholly lacking and 90 per cent. of the physicians and medical personnel are sick. The majority of refugees suffering from typhus are taken to makeshift hospitals, where the mortality is 50 per cent.

Leprosy Still a Public Health Problem in the United States.—Surgeon General Cumming of the United States Public Health Service states that leprosy, though comparatively rare in the continental United States, is still a public health problem. In the past we have not escaped. In 1786 leprous beggars were so common in New Orleans that they had to be segregated in a leprosarium. In 1864 three per cent. of the population of the Hawaiian Islands were lepers. In 1890 California had to establish a leprosarium, and Louisiana and finally Massachusetts followed suit. In 1902 the Public Health Service found 278 lepers in the United States, 145 of whom had been born in this country, and only 73 of whom were under any restraint. To-day, according to the best estimate obtainable, there are from 500 to 1500 lepers in this country, a number of whom are known to have acquired the disease in the Philippines. Foci of the disease exist in the United States on the Pacific Coast, in the Northwest, in the Gulf States, and along the Atlantic seaboard. The law provides that for three years after admission, any alien leper may be deported if the cause of the disease existed before he came to the United States. Within the United States lepers may not travel in interstate commerce except under permits prescribing special precaution to prevent the spread of the disease.

Influenza Declines in New York.—According to the Health Department's records the prevalence of influenza is now but slightly above the normal for this season of the year. Many of the deaths from pneumonia, especially among children, may be attributed to measles which is now quite prevalent in certain districts of the Greater City.

Epidemic Jaundice. — During the past few months a type of jaundice which is communicable has been reported with increasing frequency to the Health Department. The disease has also been reported frequently in recent months from other parts of the State. This disease is not a new one as some reports would indicate. Pediatricians have from time to time observed the disease and have recorded their observations in the literature. As the disease appears to be more prevalent than usual the Health Department requests physicians attached to hospital service, as well as those who have treated cases in private practice, to cooperate with the Department of Health in ascertaining more fully the facts with reference to this disease, by reporting any cases that may come under their notice during the last two or three months, and submitting such important facts in the clinical history as it may be practicable for them to give.

Smallpox in New York.—The appearance of a case of smallpox in New York City has come to be regarded as an unusual occurrence. Recently three cases of this disease were reported to the Health Department within a few days. The victims were all negroes who had not been vaccinated.

Bureau of Census Reports Lower Death Rates.—The Department of Commerce, through the Bureau of the Census, has issued a statement showing deaths and death rates by age groups from different causes in 1910 and in 1920. In every age group the death rate was lower in 1920 than in 1910, the most pronounced change appearing in the rate for infants under one year of age, which declined from 13,084 per 100,000 in 1910 to 9660 per 100,000 in 1920, a decline of about 26 per cent. The death rate for old people above seventy-five years of age shows a decrease of about 6 per cent, being 13,490 per 100,000 in 1920, as against 14,360 per 100,000 in 1910. In 1910 the death rate for infants was almost as high as it was for old people above seventy-five years of age, but in 1920 the infantile death rate was only about three-fourths as great as the death rate in old age. Particularly noteworthy is the decrease from 2581 to 2280 per 100,000 population in the age group, forty-five to seventy-four, a decrease of 12 per cent., due largely to much lower rates from tuberculosis, acute nephritis and Bright's disease, organic diseases of the heart, accidents, and typhoid fever. The general death rate from tuberculosis has decreased in the decade from 160 per 100,000 population to 114. The rate from acute nephritis and Bright's disease has decreased from ninety-nine to eighty-nine. The rate from accidents has decreased from eighty-four to seventy-one, and the rate from typhoid fever from twenty-four to eight. On the other hand, increases in the rate from influenza, cancer and puerperal causes clearly show some of the danger spots.

State Health Department Opens Campaign Against Diphtheria.—The cities of Auburn, Schenectady, and Syracuse have been selected as strategic points for the beginning of a new and aggressive campaign against diphtheria which is now being conducted by the State Department of

Health in cooperation with local health and school officials, the American Red Cross, and other civic agencies. The campaign is being carried on largely through the application of the Schick test and the immunization with toxin-antitoxin of those found to be susceptible to the disease. At the department's request, Dr. Abraham Zingher of New York, under whose direction more than 100,000 school children have been "Schick-tested," is delivering addresses in a number of up-State cities at meetings arranged in cooperation with the local medical societies, health departments, school authorities, and civic associations in order to acquaint the public generally with the use of this method for the control of diphtheria. According to statistics recently analyzed by Dr. E. S. Godfrey, Director of the Division of Communicable Diseases of the State Department of Health, diphtheria in New York State, as in other parts of the country, has shown a marked increase in the number of cases and deaths during the last three years. Following the introduction of antitoxin in 1894, the drop in the mortality from diphtheria was sudden and startling. The death rate from this disease, which in 1887 was 113.2 per 100,000 of the population in New York State, fell as low as 14.8 in 1916. But the rate for 1919 took a sharp rise to 19.9, remaining at 18.2 in 1920, and fell only to 16.1 in 1921. New York City now has the lowest diphtheria rate, 15.5 per 100,000, that it has ever experienced, and the metropolitan district does not share in the recent increase indicated by the statistics for the State generally, a fact which bears witness to the value of the new method of controlling the disease. It is hoped that the results of the campaign in New York City and in the cities above mentioned will lead to a demand for similar campaigns in other large communities throughout the State.

Maternity Bill Repudiates Federal Interference.—Conforming to recommendations of Governor Miller, a Division of Maternity, Infancy and Child Hygiene will be established in the State Department of Health under terms of a bill introduced recently by Senator Frederick M. Davenport of Oneida. After many conferences the legislative leaders have decided not to accept Federal aid in maternity care, as provided in the Sheppard-Towner act of Congress. Governor Miller objected to the Sheppard-Towner act as undue interference by the Federal Government in State affairs. The bill calls for an appropriation of $100,000 for the establishment of a Division of Maternity and Child Hygiene in the State Department of Health. It further provides for holding health consultations for mothers and children in the rural districts in cooperation with local health officers and other physicians. It provides for instructing local health nurses in the hygiene of maternity and infancy. It makes available to mothers, through instruction by physicians, nurses and publications, information concerning the hygiene of maternity and infancy. It looks toward the prevention of blindness in infancy and the care and rehabilitation of crippled children not otherwise provided for.

New Jersey Law Will Require Doctor's Approval to Wed.—The Alexander bill, introduced into the New Jersey Legislature by Senator Case, requiring applicants for marriage licenses to submit to examination by a physician, was passed on Feb. 21 and sent to the Governor for his approval.

Post Office Establishes a Dispensary.—A dispensary for the employees of the New York Post Office has been established on the fourth floor of the central office, Eighth Avenue and Thirty-third Street, and will be in operation day and night, beginning to-day and to-morrow. It will care for the 3000 men and women who work there, and also for those in branch post offices. Col. E. K. Sprague has been placed in charge. The new dispensary will be conducted with the cooperation of the United States Public Health Service.

Rockefeller Gift for London School of Hygiene.—The Rockefeller Foundation has offered to provide $2,000,000 toward the cost of building and equipping a school of hygiene in London. This offer is on the understanding that the British Government shall accept the responsibility of providing for appointing the staff and maintaining the school when established.

Alabama May Change Health System.—Efforts will be made to change the health system of the State of Alabama at the next meeting of the legislature, according to current reports. Plans for a vigorous fight to take the health administration of the State out of the hands of the Medical Society are being made. The plan proposed is in favor of a board of health composed of five or seven men appointed by the governor, part of whom shall be business men and part physicians, their appointments to be ratified by the senate. This board, according to the proposed system, would elect the health officer, who would be responsible to the board for results.

Baltimore Department of Health Increases Staff.—Health Commissioner C. Hampson Jones has augmented the health staff in the Baltimore schools by the appointment of six male and two female physicians on the contract plan to examine children when their services are considered necessary. He has also appointed one colored dental surgeon. Eight dental clinics have been established under the Health Department and two more are to be fitted up.

Hospital Notes.—The International and Great Northern Employees' Hospital Association building, located at Palestine, Texas, is nearing completion. The cost of the new building is approximately $150,000.

Plans are being formulated for the erection of a new hospital at Excelsior Springs, Mo. There will be seventy-four rooms. A part of the hospital equipment will be a complete bathhouse.

The contract has been awarded for the construction of seven buildings of the Government hospital for disabled veterans of the World War, at Augusta, Ga. The contract calls for the completion of the buildings within seven months at a cost of $263,000.

Bonds to the amount of $200,000 have been issued for a $200,000 hospital for Oklahoma County, Okla. The site for the proposed hospital has not yet been selected.

The Alabama Baptist Hospital at Selma was dedicated on Feb. 14 with appropriate ceremonies. The

new hospital is a state-wide institution. The Baptist State Convention has contributed $250,000 and the city of Selma added $100,000 to defray the cost.

Los Angeles, Calif., is to have a new $3,000,000 hospital, to be known as the Los Angeles Polyclinic Hospital. It is being fostered by a number of local physicians and surgeons who form a nucleus of a representative hospital staff. The construction of the first unit of 300 beds will be started early next fall. The second or convalescent unit is planned for the spring of 1923, and other units will follow.

Contracts amounting to $229,117 have been awarded for a part of the work on the new receiving hospital addition to the Longview Hospital, Cincinnati, Ohio. A plea has been made for the erection of the new buildings upon ground adjoining the present General Hospital, or near the University of Cincinnati Medical College.

Dr. Henry H. Rusby, director of the Columbia University School of Pharmacy, who headed the Mulford Biological Exploration of the Amazon Basin, which left this country last autumn, is, we regret to learn, crippled by neuritis and otherwise broken in health. He is reported to have left his party and to be returning unaccompanied through 2000 miles of primitive wilderness to the port of Manaos, where he hopes to take ship for New York.

Dr. Victor A. Messenger of Easton, Pa., has announced his candidacy for the Republican nomination for Representative in Congress at the coming primaries.

Dr. R. J. Hutchinson has been elected chief of staff of the Butterworth Hospital, Grand Rapids, Mich.

Dr. Walter W. Palmer, Bard Professor of the Practice of Medicine at Columbia University, has been chosen a member of the Administrative Board of the Institute of Cancer Research to serve until June 30, 1924.

Dr. Horatio P. Williams has been selected as Dalton Professor of Physiology of the Columbia University School of Medicine. His new appointment becomes effective July 1, 1922.

The Italian Congress of Radiology will hold its fourth annual meeting in Bologna, May 9, 10, and 11, 1922, at the Orthopedic Institute Rizzoli, under the presidency of Professor Aristide Busi. In connection with the congress there will be an exhibition of radiological apparatus, in which both foreign and Italian firms are invited to participate. Further information may be obtained by applying to Dr. Alberto Possati, Villa Verde, Bologna.

Obituary Notes.—Dr. ADRIAN YOUNG REID of New York, a graduate of New York University Medical College in 1880, died at Pleasantville, N. Y., on February 18, at the age of 74 years. He was a member of the New York County Medical Society and the Physicians Mutual Aid Society.

Dr. WILLIAM G. HIER, a graduate of Pulte Medical College, Cincinnati, Ohio, in 1884, died at his home in Cincinnati on February 2, at the age of sixty-six years.

Dr. THOMAS ELLWOOD CONRAD died of heart disease at Philadelphia on February 13, at the age of seventy-three years. He was graduated from Jefferson Medical College in 1878. He was at one time surgeon to the First Regimental National Guard of Pennsylvania and later Major on the Medical Staff of the First Regiment Veteran Corps. He also served on the staff of the Wills Eye Hospital. He was a member of the Philadelphia County Medical Society and the Medical Society of the State of Pennsylvania and a Fellow of the American Medical Association.

Dr. JOSEPH ROBERTS BRYAN died of pleurisy in the Misericordia Hospital at Philadelphia, February 14. He was graduated from the medical department of the University of Pennsylvania in the class of 1889. He was at one time physician to the Misericordia Hospital and to St. Vincent's Hospital. During the late war he served in the Volunteer Medical Corps.

Dr. CHARLES H. WALLACE died at Philadelphia on February 15 at the age of sixty-one years. He was graduated from the University of Pennsylvania School of Medicine in 1886. He was a member of the West Philadelphia Medical Association and of the Philadelphia Medical Club.

Dr. ROBERT WILLIAM FORSTER, a graduate of Tufts College Medical School, Boston, in 1900, and a member of the Lawrence General Hospital staff, died at his home in Lawrence, Mass., on February 8, at the age of forty-seven years.

Dr. NEWTON E. WEBB of Washington, D. C., a graduate of the National University Medical Department in 1901, died suddenly on February 9, at the age of fifty-six years.

Dr. FRED R. FARTHING of Boone, N. C., died on February 14, of pneumonia in St. Joseph's Hospital at Philadelphia where he was serving as interne. He was graduated from Jefferson Medical College in the class of 1921.

Dr. JOHN BERNARD VOOR of Louisville, Ky., Assistant Director of the American Red Cross Commission in Poland, died there on February 14 of typhus fever contracted while inspecting refugee camps at Baranew. He was graduated from the University of Louisville Medical Department in 1913, and was a Fellow of the American Medical Association. He was thirty years of age.

Dr. THEODORE FRICKENSTEIN, a retired physician of Brooklyn, N. Y., died at his home on February 22, at the age of eighty-seven years. He was graduated from the New York Medical College in 1864, and for thirty-five years was physician for the German Evangelical Lutheran Home.

Service Bureau.

Regular subscribers to the MEDICAL RECORD who desire information on any professional matter are invited to send their inquiries to the office of publication. Replies will be sent by mail as promptly as possible. Questions and answers of general interest may be published from time to time. When abstracts of articles from other journals are furnished the cost of typewriting will be charged.

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Correspondence.

THE USE OF PITUITRIN IN OBSTETRICS.

To the Editor of the Medical Record:

Sir:—During the last ten years I have read in the various medical journals numerous and sundry articles for and against the use of pituitrin but have never taken the trouble to enter into the discussion. It was only when I read in the Medical Record of Jan. 7, 1922, an article by I. Josephson, M.D., in which he says that the one and only legitimate use for pituitrin is for post partum hemorrhage, that I decided to raise my voice in protest.

When I first began to use pituitrin in obstetrics I gave it in doses of one c.c. each as directed, and only to multiparæ who were nearing the end of labor. I soon discovered, however, that the resulting expulsive efforts were unnecessarily violent, so I gradually decreased the dose until now I never give more than two minims as an initial dose, and in some cases I begin with one minim or even one-half minim. Now I use pituitrin for primiparæ as well as for multiparæ and in the first, second, or third stage of labor, and for the induction of labor, and I have yet to see any evil results from its use.

Anyone can safely use pituitrin if he will get a tuberculin syringe so as to measure accurately the amount given and give a small enough dose. If one minim does not produce a reaction in fifteen minutes it will be safe to give a little larger dose. If the contractions become too strong or too frequent they can be promptly modified by a hypodermic injection of heroin or a few whiffs ether.

It is absurd to refuse to use a valuable therapeutic agent just because it has at some time been ignorantly and carelessly used.

Dr. Josephson deplores the fact that doctors sometimes give pituitrin to shorten labor in order that they may keep appointments with other patients. He apparently ignores the fact that by so doing the doctor not only increases his own usefulness but also shortens the period of suffering for the patient. There are three kinds of obstetricians. One kind stays away until he is told that the patient is about to be delivered or that she is absolutely exhausted and needs his help. Another kind conscientiously stays with the patient hours or days, if necessary, but has too much respect for nature to interfere in any way unless the patient's condition becomes serious. The third kind stays with the patient and does everything possible to shorten the labor and relieve the pain. Which would you choose if the patient belonged to you?

In my opinion a doctor who would let a woman suffer all day and then use forceps when a small dose of pituitrin would end her torture in half an hour should not have the opportunity to practise obstetrics.

Edith E. Johnson, M.D.

Palo Alto, Cal.

MANAGEMENT OF THE HERNIAL SAC.

To the Editor of the Medical Record:

Sir:—In a recent issue of the Medical Record was a very interesting article entitled "The Bladder Bogy," written by Dr. Alexander Nicoll. The author, while covering the point indicated in the title of the article, failed to speak of the proper methods of dealing with the sac in cases of indirect inguinal hernia. The sac should be dealt with intraperitoneally through a transverse separation of the fibers of the fascia of the internal oblique and transversalis muscles. The peritoneum should be incised above the internal ring, and at the same time it would be well to remove the appendix, whether normal or otherwise—it is usually "otherwise." This by way of parenthesis to give expression to a long held belief. After the sac has been freed it is to be inverted and pushed up into the peritoneal cavity and then dealt with either by ligature or by suture.

Dr. Nicoll refers to Ochsner's method of dealing with femoral hernia by complete removal of the sac and its fatty appendages. That plan of treatment has long been abandoned by many operators, including myself. The Ruggi method, introduced in 1892, and well described in Ashhurst's Surgery, deals with femoral hernia by the inguinal way of approach. Ashhurst gives that method the preference and I can heartily indorse it.

Richard H. Conway-Gibbons, M.D.

55 Park Avenue, New York.

A REGULAR FELLOW.

To the Editor of the Medical Record:

Sir:—In a letter to the Medical Record of this date, "A Fellow A. M. A." complains about the way the funds derived from the recently increased dues of the American Medical Association have been expended in getting out and in tabulating the result of the recent more or less questionable questionnaire. Unquestionably much of the force of this complaint is lost by the anonymous nature of its origin. "What is the use of being a fellow," it used to be said, "unless you're a h—— of a fellow?"

Does not this distinction attach to any Fellow of the American Medical Association who goes on record in opposition to the activities of the ruling powers of this organization, even if this opposition applies to such fundamental matters as the disposition of the common funds?

Another Fellow A. M. A.

New York.

OUR LONDON LETTER.

(From Our Own Correspondent.)

London, Feb. 7, 1922.

The Pathological and Bacteriological Laboratory Assistants' Association.—As Professor Lorrain Smith said in 1912, those who are not familiar with the working of a pathological laboratory are apt to imagine that the duties of the assistant comprise little or nothing that demands skill or experience. This view is altogether mistaken, for not only does the laboratory assistant require a large amount of experience and skill, but he must be able to do a great deal that is not routine: he must have initiative and he must train himself to make observations. To be a laboratory assistant, at his best, a man must have not only original gifts of mind and character, but he must have experience and skill of a very high order. The proposal, therefore, to form an Association of the Pathological and Bacteriological Laboratory Assistants commended itself

to the Pathological Society of Great Britain, members of this society cooperating with the assistants in putting the proposal into shape. It may be stated that the movement in 1912 to establish the Association was not the first of its kind, as in 1896 Mr. McLean of the Clinical Research Association, London, when in University College, Birmingham, made an effort to found an association to embrace all laboratory assistants. Unfortunately the time was not then ripe for a movement on this scale, but the experience gained proved of great value in carrying out the preliminary arrangements. The originators of the movement to found the association were at first inclined to attempt the foundation of an association on similar lines to those of 1896, but on further consideration they thought it more desirable to start with one section, feeling that if the lesser movement proved successful, then the greater, viz., an association to include laboratory assistants in all branches of medicine, would be more easily accomplished. As mentioned before, the Pathological Society of Great Britain and Ireland, the members of which are to a large extent the employers, were in full sympathy with the movement, the success of which has been largely due to their earnest cooperation. The association was reconstituted in 1920 and its objects may be tabulated as follows: (1) To advance the interests of members. (2) To confer certificates of proficiency in pathological and bacteriological technic. (3) To keep a register of certificated pathological and bacteriological laboratory assistants. (4) To publish an official journal. (5) To form a library for the use of members. (6) To establish an employment bureau for the use of members. The association shall consist of: (1) Registered members, i.e., laboratory assistants who possess the association's certificate in pathological and on bacteriological laboratory and on museum technic. (2) Ordinary members, that is, laboratory assistants 21 years of age or over who have had three years' training in a recognized pathological or bacteriological laboratory, but do not possess the association's certificate in laboratory technic. (3) Junior or student members, that is, pathological and bacteriological laboratory assistants under 21 years of age, or with less than three years' experience. (4) Honorary members, that is, members of the medical and allied professions who are intimately connected with the sciences of pathology and bacteriology. (5) Associate members, that is, laboratory assistants in any recognized scientific laboratory other than those of pathology and bacteriology.

The examinations are controlled by an examining council constituted as follows: The president of the association; two members of the Pathological Society of Great Britain and Ireland; two registered members of the association. Candidates for examination must be 21 years of age, have had five years' experience, and have been a member of the association for six months. At the time of his death Sir German Sims Woodhead was president of the Association.

Lunacy Reform in Great Britain.—In consequence of severe criticisms launched against the management of lunatic asylums in this country and their publication in the lay press, the public has been greatly exercised in mind on the subject and have clamored for an inquiry. So great has been the movement for investigation that a conference was convened and about 200 medical superintendents of mental hospitals met at the London County Council offices to discuss the matter. Sir Alfred Mond, the Minister of Health, in opening the proceedings, said that he was glad to note that the term "asylum" had been dropped in favor of "mental hospitals." The public should be disabused of the idea that lunatics were people very largely incurable, for whom little could be done except custodial treatment. The adoption of modern methods of diagnosis and treatment would result in greater economy, and the more lunatics that could be cured the greater would be the relief in expenditure. Medical officers should be granted fuller facilities for post-graduate work, which was the only method of rapidly acquainting themselves with the subject of mental diseases. The public were still often imbued with the ideas in Charles Reade's novels; but the agitations got up in recent years were fictitious and untrue. He felt satisfied that all the kindness, care and good treatment possible were available in asylums under existing circumstances. It was unfair to brand the asylum service with any stigma, and the whole feeling of stigma in regard to lunacy should disappear. The public did not realize how many patients were cured and discharged from asylums and returned to their normal life as good citizens, and it was important that the cloud of hopelessness in these cases should be lifted. There appeared to be a unanimous opinion that permanent mental disease could be prevented by early treatment. If early treatment was to be given without certification, an alteration in the present law would be required, and any such alteration would be difficult to achieve unless there were a general agreement on the part of those competent to speak. With respect to the treatment of early incipient cases opinions differed somewhat. Alderman McTaggart and several others laid stress on the importance of keeping institutions into which it was proposed to admit patients without certification, entirely free from any reproach of insanity, and said that even visiting committees of asylums should have nothing to do with them, and that they should be wholly divorced from the existing mental hospitals. However, as the discussion proceeded it was generally admitted that some kind of supervision was necessary, and at last it was uanimously agreed that it was undesirable to establish two boards dealing with similar matters, and that it was quite for the best that the Board of Control should be the supervising body. Dr. H. C. Bond pointed out several difficulties, and asked whether it was intended that there should be any powers of detention over those patients who, after entering homes that might be established for persons suffering from temporary maladies, wished to leave before they were considered fit to do so. It was pointed out that there was nothing to prevent voluntary homes from being established now, but that the difficulties arose when persons were too confused in mind or too mentally disordered to be able to exercise volition. How long were such cases to be regarded as "early," and what, if any, limitation was to be placed upon their freedom of movement. The discussion elucidated some moot points consid-

erably, and finally a decision was reached urging the establishment of institutions for the treatment of early cases without certificates, with a rider recommending that such institutions should be under Government supervision, and that the body to exercise this supervision should be the Board of Control.

The Annual Congress of the Ophthalmological Society of the United Kingdom.—The next annual Congress of the Society will be held on May 11, 12 and 13, at the Royal Society of Medicine, 1 Wimpole Street, W.

Congress of the Royal Sanitary Institute.—The Royal Sanitary Institute will hold a Congress at Bournemouth on July 24-29, under the presidency of Major-General J. E. B. Seely, M.P. Conferences will be held on subjects relating to hygiene and sanitary science, and a health exhibition will be arranged in connection with the meeting.

Progress of Medical Science.

Boston Medical and Surgical Journal.

February 16, 1922, clxxxvi, 7.

1. Infections of the Biliary Passages. John T. Bottomley.
2. The Value of Medical Biliary Drainage for Diagnosis and Treatment of Diseases of the Gall-Bladder and Bile Ducts. Franklin W. White.
3. Clinical Notes on Hearts in Hyperthyroidism. Burton E. Hamilton.

2. The Value of Medical Biliary Drainage for Diagnosis and Treatment of Diseases of the Gall Bladder and Bile Ducts.—Franklin E. White records his experience in about 100 cases with the Meltzer-Lyon method of drainage of the bile passages by means of the duodenal tube and douching the duodenum with a magnesium sulphate solution. He thinks the early papers on this subject seem overenthusiastic and dogmatic, and say too little about the limitations and difficulties of this method. It is somewhat elaborate and time-consuming, but can be carried out on nine-tenths of the patients chosen for examination. In spite of its limitations the method has proved useful and sometimes very useful in diagnosis. It helps to show whether the ducts are open or closed. If no dark or "B" bile is obtained on repeated drainage, properly performed, we may suspect cystic duct obstruction, frequently with gallstones. If no bile is obtained with a proper drainage, but pancreatic ferments or blood are found, common duct obstruction is present, frequently malignant. Cholecystitis and cholangitis cases, unless marked obstruction exists, usually give a bile which is abnormal in color, appearance, cells, mucus, and bacteria. Gall-bladder sand may aid in the diagnosis of gallstones, but, in general, the drainage in gallstone cases was not characteristic. In treatment White thinks we cannot be sure at present how completely this method empties the biliary passages in all cases, but in many it appears to do this very well. The best field for its use is in the milder and moderate grade of cholecystitis and choledochitis cases, where no marked obstruction exists. Many such cases are apparently relieved, or apparently cured, following this treatment. It is obviously unsuited for treatment of acute, virulent infections of the gall bladder, acute or chronic empyema, gangrenous cholecystitis or cases with known stones or tumor, or severe chronic obstructive cases which will not drain. It may be occasionally useful in some of these cases when surgery is contraindicated, as in old people, or in cardiac, renal or diabetic patients.

3. Clinical Notes on Hearts in Hyperthyroidism.—Burton E. Hamilton, on the basis of personal examinations of over 200 hearts in hyperthyroidism in the clinic of Dr. Frank H. Lahey, finds that the great majority of hearts in cases of hyperthyroidism are found with no evidence of damage. Heart failure is not found in this class of cases, even where death occurs. Hyperthyroidism in the presence of (a) rheumatic heart disease, and (b) middle age (over forty-five years), has a tendency to cause established or paroxysmal auricular fibrillation. Many cases of hyperthyroidism showing auricular fibrillation without true signs of heart failure have stood operation well. All auricular fibrillation cases with hyperthyroidism can be improved by digitalization. Digitalis reduces the ventricular rate in all the fibrillators. It is suggested that digitalization has a favorable influence on the cure of auricular fibrillation in hyperthyroidism. Another inference is that digitalization does not materially lower the heart rate in hyperthyroidism cases that do not have auricular fibrillation.

New York Medical Journal.

February 15, 1922, cxv, 4.

1. A Discussion of Angina Pectoris. Clifford Allbutt.
2. The Significance of Peripheral Resistance in Circulatory Disturbances. William Russell.
3. The Relation of the Peripheral Circulation to Disease of the Heart. James Barr.
4. The Facies in Mitral Stenosis and Aortic Regurgitation. Sydney Russell-Wells.
5. The Meaning of Tachycardia in Relation to the Mechanism of the Responses of the Heart. R. McNair Wilson.
6. The Premature Contraction and Its Significance. J. Strickland-Goodall.
7. Cardiovascular Disorders Produced by Disease of the Digestive Tract. N. Mutch.
8. The Heart in Chronic Pulmonary Tuberculosis. Arthur Latham.
9. Paroxysmal Tachycardia. Frederick W. Price.
10. Infective Endocarditis. Basil Parsons-Smith.
11. The Relationship of Precordial Distress to Extracardiac Conditions. Edward C. Reifenstein.
12. The Cardiac Index of Goiter. A. E. Renner.
13. Estimating the Intrapericardial Pressure. G. Arbour Stephens.

1. Discussion of Angina Pectoris.—Clifford Allbutt reiterates his hypothesis that in angina pectoris the lesion is not primarily cardiac, but in the large majority of cases aortic; and that death is due not to heart failure implicit in the disease, but to a secondary inhibition set up by the pain, or kindred afferent influence; an inhibition the more effectual the worse the condition of the myocardium. Thus the prognosis as to survival is far better in the younger subjects of aortitis—so long as the coronary vessels are patent—than in the elderly in whom the heart is impaired. A number of authors who have objected to this theory are dealt with incidentally and attention is directed to recent observations on the causes of angina. Evidence is accumulating of the acute infectious origin of aortitis. Syphilitic infection has long been recognized as a cause; now reports of cases of aortitis following influenza and in rheumatic fever and many other infections are coming in. Notwithstanding all this angina may be of cardiac origin, but this happens only when its investments are inflamed or stretched, as in pericarditis or coronary thrombosis. In cases of aortic angina the pulse is, on the whole, indifferent; in case of coronary thrombosis the pulse has been thrown into great disorder, so much so as to aid in the differential diagnosis of this accident from ordinary angina. Other diagnostic points are: Pain no less severe, but more diffuse and continuous and more about the region of the heart (not so distinctly substernal); restlessness, dyspnea, and frequently palpable dilatation of the heart and audible pericardial friction. Dyspnea, if present, means not angina, but, if the case be one of angina at all, then some complication of it. The characteristic pain in angina is substernal, not precordial. Aches and oppressions about the cardiac area suggest rather disease of the heart itself. Where presumably the aorta is not much degenerated or not so profoundly altered, an angina due mainly to excessive pressures may subside as these are moderated. In the treatment of angina the author says there is not much that is new. He alludes to Jonnesco's operation for the relief of angina by the division of the left sympathetic in the neck. Jonnesco reports two cases in which this procedure has been successful. Time and larger experience are necessary before any opinion on this method can be pronounced. It is pointed out, however, that Jonnesco assumes the origin of the pain to be in the chronically inflamed investment of the aorta, and proceeds therefore to cut the path of transmission to the cord and encephalon.

4. The Facies in Mitral Stenosis and Aortic Regurgitation.—Sydney Russell-Wells points out that not infrequently the different appearances presented by

mitral stenotics and aortic regurgitants are so marked and characteristic that a provisional diagnosis suggests itself by the appearance alone. There is marked cyanosis in the cases of mitral stenosis, while, on the other hand, cases of aortic regurgitation show no cyanosis. To explain this difference the writer develops the theory that in mitral stenosis the blood as a whole is more venous than normal and tends to accumulate in the systemic venules, and the circulation tends to slow down, while in aortic regurgitation the blood as a whole is more arterial than normal and tends to accumulate in the systemic arteries and the circulation tends to quicken.

6. Premature Contraction and Its Significance.—J. Strickland-Goodall, on the basis of observations carried out over ten years on 13,231 cases, summarizes his views as follows: (A) Extrasystoles indicate hyperirritability of the myocardium. (B) Hyperirritability of the myocardium is produced by either extrinsic or intrinsic causes, the latter being by far the most important. (C) Hyperirritability represents a definite stage in the physiological process of fatigue and the pathological conditions of inflammation, degeneration, and toxemia, hence extrasystoles are indications or manifestations of such conditions. (D) Extrasystoles are important according to: (a) The nature of the underlying condition. (b) The amount of intravascular strain and amount of circulatory disorganization they produce. (E) Auricular extrasystoles are practically always intrinsic in origin and usually indicate definite damage to the auricular myocardium. They often precede flutter and fibrillation and give rise to paroxysmal tachycardia. (F) Right ventricular extrasystoles are often extrinsic in origin and due to pressure, but they may be intrinsic, when they usually indicate right heart strain or exhaustion. (G) Left ventricular extrasystoles often indicate left ventricular fatigue and precede failure, especially in aortics. (H) Extrasystoles of any type in complete heart block seriously disorganize and embarrass the circulation and must always be regarded as serious.

Journal of the American Medical Association.

February 18, 1922, lxxviii, 7.

1. Ureteral Obstruction: Failure to Recognize the Condition as a Frequent Cause of Unnecessary Operation. K. I. Sanes.
2. The Diagnostic Value of Volume Ratio Determinations of Day to Night Urine. Harold W. Jones.
3. Hematogenous Staphylococcus Infections Secondary to Foci in the Skin. D. B. Phemister.
4. A Dietary Consideration of Eczema in Younger Children. Edward Scott O'Keefe.
5. Corpus Luteum Extract in the Treatment of the Vomiting of Pregnancy. E. L. King.
6. Empyema of the Antrum of Highmore Secondary to Extraction of Teeth: A Study of One Hundred Cases. Horace R. Lyons.
7. Outbreak of Epidemic Jaundice Among College Students. Ira V. Hiscock and Orville F. Rogers, Jr.
8. The Schick Test: Standardization of Diphtheria Toxin for the Control; Methods of Diluting the Toxin. Abraham Zingher.
9. Postmortem Findings in Twelve Cases of Plague. Henry Hartman and Anna Bowie.
10. Angioneurotic Edema. James McIlvaine Phillips.
11. Clinical Study of a Case of Acromegaly. Julien E. Benjamin.
12. A Case of Multiple Cranial Nerve Palsy Due to Extracranial Disease. Lewis J. Pollock.

2. The Diagnostic Value of Volume Ratio Determinations of Day and Night Urine.—Harold W. Jones has carried out investigations for the purpose of determining the normal ratio between day and night urine, and to demonstrate departures from this normal in nephritis. He finds that the normal ratio of day to night urine is 1:¼ or 1:⅓, occasionally 1:½. The ingestion of large amounts of fluid does not materially alter the ratio, or the value of the test. On a low fluid intake, with a total output of 500 c.c. or less, the volumes are nearly equal, and the ratio is of less significance. In chronic contracted kidney the normal ratio is often reversed, i.e. the night urine is greater in amount than the day. Frequently the night and day urines are nearly equal. In nephritis the ingestion of a large amount of fluid does not alter the ratio to any marked degree. In chronic parenchymatous nephritis, if the output is small, the ratio determination has less value. On a protein-free diet, with clinical improvement, the normal ratio is reestablished in many cases. The determination of the volume ratio of the night to day urine in the two hour specific gravity fixation test is a more reliable index than the measurement of the night volume alone. The determination of the ratio is of value in differentiating between nocturnal polyuria and nocturnal frequency. In normal persons who work at night the ratio of the work period to the rest period remains unaltered, the work period volume being three to four times that of the rest period. In patients with chronic nephritis, who work at night, the volume of the day or rest period is greater or equal to that of the night or work period. The alteration of the normal ratio is one of the earliest signs of functional impairment of the kidney.

3. Hematogenous Staphylococcus Infections Secondary to Foci in the Skin.—D. B. Phemister calls attention to the fact that while much interest has been shown in this country during recent years in foci of infection, from which microorganisms gain entrance into the circulation and produce remote lesions in various locations, it has been directed chiefly to the streptococcus. The portal of entry of the staphylococcus has not received proportionate attention, but there has been a growing tendency to consider it also as the nasopharynx or mouth in nearly all cases, to the neglect of consideration of other regions as possible portals of entry, of which there is no better example than the skin. It is an old observation that staphylococci not infrequently enter the blood stream from skin foci and produce inflammation in various structures of the body. This is illustrated by a group of cases coming under the writer's observation in the course of twenty months previous to September, 1921. This group of cases included eight of osteomyelitis, two of multiple renal abscesses, three of perinephritic abscess, four of myositis, and two of arthritis. There is evidence in favor of the view that certain strains of staphylococci regardless of their virulence or portal of entry, possess special power for attacking certain tissues. Lesions of the nose and accessory nasal sinuses are probably an important source of hematogenous staphylococcus infections. There is as yet little proof that chronic staphylococcus infections in the teeth and tonsils are both the source of and responsible for the continuance of hematogenous lesions as chronic osteomyelitis. It is contended by Roth and others that the staphylococcus may penetrate the intact skin without producing a local lesion.

4. A. Dietary Consideration of Eczema in Younger Children.—Edward Scott O'Keefe asserts that while fats and carbohydrates have claimed attention as factors in the etiology of eczema, the proteins have escaped suspicion. Among 131 cases of eczema in breast fed babies he has found forty-five, or 35 per cent., showing sensitization to one or more of the common food proteins. This is in striking contrast to the percentage of protein sensitization in normal children, in whom Baker reports the incidence of protein sensitization to be an almost negligible factor. In exclusively breast fed infants the writer has had apparent cure in about 40 per cent. and definite improvement in about 20 per cent. more following omission or limitation of certain articles of food in the maternal diet. The aim of treatment should be to secure complete digestion of ingested protein, either by improving the digestive function or by limiting the intake of offending proteins. Sensitization of the nursling apparently does not occur through foreign proteins ingested with breast milk.

7. Outbreak of Epidemic Jaundice Among College Students.—Ira V. Hiscock and Orville F. Rogers, Jr., record observations on sixty-nine cases of epidemic jaundice occurring at Yale University, sixty-three of them having an onset within a period of fifteen days. The most prominent symptoms were pronounced weakness, loss of appetite, and the appearance of the jaundice itself. It appears from the study that the majority of the sixty-nine cases reported originated in contact infection either by direct transfer from person to person or in some instances perhaps by infection of eating utensils at two eating clubs patronized by the majority of students affected.

8. The Schick Test: Standardization of Diphtheria Toxin for the Control: Method of Diluting the Toxin.—Abraham Zingher, in a previous communication, called attention to the fact that in a number of com-

mercial preparations of diphtheria toxin, the toxic strength of the dilution was considerably below that of a standard dilution of toxin. In view of this finding he strongly advises standards for official control of Schick outfits. Careful standardization of Schick outfits in guinea pigs necessitates that there should be at least one minimal lethal dose in each individual outfit. Such an outfit would be sufficient for from thirty-five to forty-five tests. Outfits for the Schick test sufficient to make five to ten tests cannot be tested for accuracy in the human being. Undiluted bulk toxin, accurately and carefully diluted, is most suitable for the testing of large numbers of individuals in schools, institutions, hospitals, clinics, etc. Two methods for the dilution of bulk toxins are described in detail. The dose of toxin for the Schick test is 1/40 minimal lethal dose in 0.2 c.c. This amount was found to be the equivalent of 1/50 minimal lethal in 0.1 c.c. The larger amount of the more diluted toxin is easier to inject, and the results are more likely to be accurate. The positive Schick test reactions also in susceptible individuals who have not even a trace of antitoxin are not likely to be so severe and show the superficial necrosis of the skin noted with the more concentrated dilutions of the toxin recommended by Schick. The dose of heated toxin for the control test has, in addition, a 20 per cent. excess to allow for slight deterioration by heating of the reacting autolyzed protein. Too much emphasis cannot be laid on the accurate dilutions of the toxin for the Schick test and the control test.

The Lancet.

January 28, 1922, ccii, 5135.

1. The Problem of the Solitary Child. Robert Hutchison.
2. A Glimpse into the History of the Surgery of the Brain. Charles Ballance.
3. A Case of Acute Anaerobic (*B. welchii*) Infection of Uterine Fibroids, with a Reference to the Etiology of Necrobiosis. W. B. Gabriel and A. Neave Kingsbury.
4. Chronic Deep Infection of the Jaws. Stanley Colyer.
5. Two Cases of Fever. R. V. Solly.
6. John Hunter and Portugal. John Bland-Sutton.

3. A Case of Acute Anaerobic (B. welchii) Infection of Uterine Fibroids, with a Reference to the Etiology of Necrobiosis.—W. B. Gabriel and A. Neave Kingsbury report this case of acute emphysematous gangrene of a uterine fibroid terminating in a rapidly fatal anaerobic septicemia both because of its extreme rarity and also because its leading features suggest a resemblance to the condition known as acute necrobiosis or red degeneration of fibroids of the uterus. The striking clinical features of the case were the patient's mental alertness and sense of well-being until about six hours before her death, an extreme jaundice though no bile-duct obstruction was found post-mortem, and the very marked hyperresonance of the abdomen, particularly in the umbilical and hypogastric regions. This was proved post-mortem to be due to gaseous distention of the large fibroid which lay immediately beneath the anterior abdominal wall. The case establishes the following facts: (1) The fibroids have been infected by *B. welchii*, derived most probably from the cavity of the uterus. (2) The infection has remained localized to the fibroid and resulted in local changes and general effects. Hemolysins produced in the fibroid will account for the hemolysis upon which all observers are agreed, and which would account for the marked jaundice in this case. The initial infection will cause a vascular engorgement which by distention of the capsule will cause the pain of which these patients complain. Later, infective periphlebitis may involve the capsular vessels, and the condition may proceed finally to an established phlebitis and thrombosis. The histological changes of hyaline and fatty degeneration, and loss of nuclear staining, are consistent with the theory of anaerobic infection. The general effects were produced by the absorption of these toxins. The case has, then, much in common with more typical cases of acute red degeneration; it differs in that the infection proceeded to a well-established septicemia, but, as in puerperal sapremia, infection may remain localized to the uterus, so it is suggested that it may remain localized in necrobiosis and hemolysis. The theory of anaerobic infection as the primary cause of this condition is more satisfactory than the current theories of primary thrombosis or septic necrosis, and the immunity from red degeneration which ovarian fibroids show is well explained by this theory in virtue of their non-contact with the uterine cavity. Although all varieties of uterine fibroids may become necrobiotic, interstitial and submucous tumors are most liable to become so affected.

4. Chronic Deep Infections of the Jaw.—Stanley Colyer holds that many failures or partial failures in the treatment of oral sepsis may be explained by the fact that the infection has been by no means limited to the teeth and their immediate neighborhood, but has passed into the body of the jaws and there formed breeding-grounds which in time cause changes in the bone sufficiently coarse to alter the radiographic shadows peculiar to cancellous bone. To discover infection of the jaw one must study the radiograms with a magnifying glass. The general impression that one gains from a radiogram of infection of the jaw is a suggestion of wooliness or fleeciness about the negatives, and the presence of blotches or patches of increased or decreased translucency. The fleeciness appears to be due to a thickening of the trabeculæ of the cancellous tissue and to a decreased translucency of the cancellous spaces, as though lime salts were diffused throughout the medullary substance. Under the magnifying glass one of the most important features of chronic infection may be discovered, namely, the presence of small, roundish, blackish spots surrounded by a layer of sclerosed bone. To be of diagnostic value they must be present in fair numbers. From analogy with a similar condition often found at the apex of infected inter-radicular bony septa these points are assumed to be small masses of inflammatory tissue dependent upon a low grade infection. As it would seem impossible from the evidence of radiograms to curette away satisfactorily the whole of the infected bone, it might be well worth while, after the removal of the ports of infection, to test the possibilities of vaccines and ionization.

British Medical Journal.

January 28, 1922, i, 3187.

1. An Address on Tuberculosis of the Lymphatic System. Robert Philip.
2. Some Local Results of Dental Infection. W. G. Spencer.
3. Febricula and Influenza. A. I. Simey.
4. Spasmodic Stricture of the Uterus. M. A. Dobbin-Crawford.
5. Rectal Administration of Tartrated Antimony in Bilharziasis. H. F. Wilson.
6. Some Functions of the Suprarenal Glands. Evelyn Hewer.
7. The Virulence of Diphtheria-like Organisms. A. J. Eagleton and E. M. Baxter.

1. Tuberculosis of the Lymphatic System.—Robert Philip stresses the following points: (1) The part played by the lymphatic system, in the early spread of tuberculosis, requires to be emphasized. (2) Patients should be examined with that in mind, and the more important groups of glands should be systematically reviewed. In cases of general delicacy, all the readily accessible lymphatic glands should be carefully investigated. (3) In young children the lymphatic system should be investigated with special care, from time to time. (4) Lymphatic tuberculosis, conspicuous in children, becomes less marked in later life. (5) In cases of gross enlargement of one or more glands, exacting search should be made into the state of adjacent glands and other groups of glands. (6) Operative treatment should be limited to emergencies, and, save in exceptional cases, such operative treatment should not involve extensive incision. Tuberculous involvement of the lymphatic system can be effectively combatted by continuous vaccine therapy. Under the continued use of tuberculin—whether subcutaneously or by inunction, as the writer has practiced with excellent results for many years—the grosser tumors gradually melt away. *Pari passu*, the glands at a distance are influenced, and the advance of disintoxication is registered by the improved appearance of the patient, increase of weight, and recovery of muscular tone.

3. Febricula and Influenza.—A. I. Simey divides the influenzal group of diseases for convenience into two groups: (a) Localized infections, with slight toxemia, namely, coryza, catarrh. (b) General infections, with much toxemia and possibly septicemia, namely, febricula, influenza. Statistics are presented of an outbreak

of febricula in Rugby school, during the summer term of 1918, where it is safe to say that every student was exposed to infection. One-third of the school, 187 cases, succumbed during the term; whilst others, perhaps amounting to 250, contracted the disease during the holidays. In the following term, when influenza in its severest form was epidemic everywhere, and especially severe in the Rugby district, there was not a single case among the school boys, and only seventeen cases of mild "febricula" were admitted to the sanatorium. During the next term, when another wave of influenza passed over the district, the school was again visited by febricula in epidemic form. Of the 187 boys who had contracted it in 1918, 170 still remained in the school, and of these thirty-one succumbed out of 140 cases admitted. From these statistics and the examination of a large number of individuals, Simey concludes that febricula is closely allied to coryza and the febrile colds on one hand and to influenza on the other hand; that an attack of febricula renders most patients temporarily immune to febricula and influenza; that such immunity lasts from three to nine months, and that there are some individuals highly immune to both diseases. He is inclined to think that the bacillus of Pfeiffer is rightly named *B. influenzæ*. In the writer's experience prophylactic treatment with vaccines has been much more encouraging than the therapeutic. Vaccines to be most efficacious should be specially prepared from local material, and in an epidemic these vaccines should be systematically reinforced to keep pace progressively with the advance of the disease. The possession of an autogenous vaccine from a given patient is useful for the direct contacts of the patient from whom it is obtained, and possibly also, in a less degree, for the more remote contacts.

4. Spasmodic Stricture of the Uterus.—M. A. Dobbin-Crawford reports a case of this condition, and discusses the treatment, bringing out the following facts: (1) The difficulty, danger, and high mortality attending active interference. (2) That the only abnormal condition is a localized spasm of the uterine muscle. (3) That deep anesthesia diminishes muscle spasm. (4) That repeated examinations increase spasm and are therefore contraindicated. (5) That in the case reported deep and prolonged anesthesia alone resulted in the spontaneous delivery of a healthy child. (That in previous confinements of this patient forceps were applied on every occasion with an infant mortality of 50 per cent. The correct treatment for this condition is deep anesthesia, if necessary prolonged, and nothing else. This treatment will, in the opinion of the writer, nearly eliminate the necessity for cesarean section.

6. Some Functions of the Suprarenal Glands.—Evelyn Hewer describes feeding and inoculation experiments in white rats from which she concludes: That the suprarenal cortex plays a part in fat metabolism and in calcium metabolism; that it stimulates the thymus to involution; that it controls the gonads in both male and female with respect to both reproductive and interstitial cells, and that it acts as a whole in controlling general health, in controlling hemoglobin breakdown, in regulating the function of lymphocytes, in regulating the production of mast cells, and in stimulating the thyroid. The suprarenal medulla is connected with the formation of melanoblast cells. Inoculation with various suprarenal extracts appears to lower the resistance of experimental animals, as is indicated by the condition of the lymph and hemolymph glands.

Annals of Surgery.

November, 1921, lxxiv, 5.

1. Results of Twenty-One Cases of Surgical Treatment of Aneurysm. William O. Ott.
2. Transorbital Puncture of the Gasserian Ganglion. Chester M. Van Allen.
3. A Study of Methols of Procedure in Resection of the Esophagus. Charles Y. Bidgood.
4. Observations upon the Surgery of the Lung. Samuel Lloyd.
5. Gangrene of an Extremity as a Complication of Pneumonia. Walter D. Wise and Erwin E. Mayer.
6. Central Bone Abscess. Clarence A. McWilliams.
7. Peptic Ulcer. Primary and Secondary. John B. Deaver.
8. Experimental Intestinal Obstruction. Harry Belleville Eisberg.
9. A Fundamentally New Technique for Inguinal Herniotomy. Marsh Pitzman.
10. Incomplete Rupture of the Axillary Artery. James Eaves and Paul Campiche.
11. Arterial Hematoma Following Traumatic Rupture of the Popliteal Artery. Anthony H. Harrigan.
12. Fragilis Ossium. Edgar A. Vander Veer.
13. A Technique for Leg Amputation. Thomas G. Orr.

2. Transorbital Puncture of the Gasserian Ganglion.—Chester M. Van Allen traces the history of needle puncture of the trigeminus, and describes the technique of Harris and Härtel, both of whom used the foramen ovale as a pathway to reach the ganglion. These methods are uncertain in execution and involve dangers. A hitherto untried needle-approach to the Gasserian ganglia is the orbit, the path followed is the medial orbital wall, and the portal of entry to the cranial cavity the sphenoidal fissure. The needle is guided by the sense of touch along a smooth, bony surface, until its progress is obstructed by the bony fossa lodging the Gasserian ganglion. The needle can do no harm in its prescribed channel, but does not have to wander far afield to inflict serious damage. The anatomical study of this method has been carried out on 24 cadavers and, of 52 consecutive punctures, 43 have been shown to enter and successfully infiltrate the ganglion root; four punctures did not have to do with normal adult skulls, and five punctures were failures, four because the needle terminated within the cavernous sinus. When this occurs it can be recognized immediately, for blood flows slowly from the needle, and under these circumstances injection with alcohol is contraindicated. In five cases in which this method of puncture has been employed in the human being, the needle was introduced without the slightest difficulty in the recognition of the pathway, and the technique was successful in producing anesthesia of the entire trigeminal field. Other experiments carried out by the writer show that whatever injury is inflicted upon the root of the ganglion by the injection of alcohol will be shared to a less extent by neighboring nerves. This is true no matter by what approach or technique the needle is entered. Accordingly, until some method is found for preventing this widespread diffusing of the alcohol, he cannot recommend puncture in the therapy of trigeminal neuralgia. Other possibilities for the employment of the technique suggest themselves. It affords a method of withdrawing cerebrospinal fluid directly from the basilar cistern. Wider experience may justify an attempt to use this route for therapeutic applications to the central nervous system. The effect of air injections in the *x*-ray diagnosis of intracranial disorders is likewise worthy of consideration. The results of this work lead the writer to believe that transorbital puncture of the Gasserian ganglion furnishes a relatively simple method of securing block anesthesia for operations in the territory supplied by the trigeminus, fully justified in cases in which general anesthesia is contraindicated, as in aged and infirm patients with carcinoma in this region.

4. Observations upon the Surgery of the Lung.—Samuel Lloyd summarizes the present indications for operations on the lungs as follows: (1) For tuberculous cavities where gas injections into the pleural cavity, either because of too rapid absorption of the gas or because adhesions prevented the collapse of the lung, extrapleural thoractomy should be performed. This may be completed in stages, depending upon the condition of the patient. (2) For bronchiectasis, extrapleural thoractomy may be performed, although incision and drainage or lobectomy offer a better chance for a radical cure. (3) For foreign bodies which cannot be removed by bronchoscopy, thoractomy, with direct removal by incision through the lung, would be the method of choice. (4) For hemorrhage with increasing hemothorax, compression of the lung and displacement of the heart and mediastinum, thoractomy with suture of the bleeding points is indicated. (5) For abscess, thoractomy and drainage of the abscess, attaching the pulmonary pleura about the opening of the lung to the parietal pleura in order to effect direct drainage, will give the best results. (6) For tumors of the chest wall, including the ribs and pleuræ, complete removal with a pediculated skin flap from the abdomen has been successful. (7) For tumors of the lung, thoractomy and direct excision by partial or complete lobectomy offers the only chance of curing the patient. (8) For empyema, early and frequent apsiration, followed, if

necessary, by intercostal incision and drainage. If these methods are not efficacious, one of the radical operations should be performed.

8. Experimental Intestinal Obstruction.—Harry Belleville Eisberg describes observations made to show the existence of a distinct duodenal obstruction entity in which the pancreas plays the dominant rôle; to show the existence of a distinct intoxication resulting from intestinal segments or loops, and also to record observations made in a group of experiments conducted to clear up certain points of discord between the various observers. It appears from these observations that in severed gut obstruction in the duodenal region the pancreas is probably the main source of the toxin. Bacteria are apparently not a determining factor in this type of obstruction. In the pure segmental type of obstruction (*i.e.* an isolated segment with the continuity of the gut restored) the damaged intestinal tissue is the deciding factor as regards lethal outcome; if no devitalized tissue is present death does not occur. In nonvitalized segments bacteria alone will not be responsible for a lethal outcome. At times a devitalized segment appears to be responsible for a lethal outcome long before there has been time for bacterial action to play a part in the result. When a severed gut and segmental obstruction are present together and there is no damage to the intestinal mucosa in the segment, the lethal outcome is due to the oral severed gut obstruction and not to the undamaged segments. In both types of obstruction the breaking down of the host protein molecule appears to be an important factor in the formation of toxic substances. Whether the actual ends products in both instances are chemically allied or not has yet to be proven. In the severed gut obstruction death appears to be essentially a physiological one. In the devitalized segmental type this is true in the main, the added element being the presence of bacteria. The theory of Draper that in severed gut obstruction the administration of the scrapings of jejunal mucosa suspended in water detoxicated the poison originating in the duodenal mucosa is now regarded as fallacious, and it would seem that the beneficial results may be properly ascribed to the watery contents of the mixture and not to any specific effect of the jejunal scrapings. The point of view of Hartwell and Hoguet that dehydration of tissues is the important factor, with a secondary intoxication the result of dehydration, as the cause of death in severed gut obstruction, does not appear to be in accord with present views.

9. A Fundamentally New Technique for Inguinal Herniotomy.—Marsh Pitzman describes the technique of a modified Bassini operation, the underlying principle of which is the reproduction of physiological valve reaction by (a) resection of the hernial sac; (b) actual effective repair of the enlarged opening in the transversalis fascia, and (c) the avoidance of injury to the internal oblique and transversalis muscles. The essential step of the operation is to sew the transversus fascia and aponeurosis—and only these layers—down to the inguinal ligament of Poupart before the peritoneal cavity has been closed. The technique, it is claimed, is universally applicable to all inguinal hernias, small or large, direct or indirect, primary or recurrent, and is especially recommended for medium and large necked hernias.

Ohio State Medical Journal.

December 1, 1921, xvii, 12.

1. The Treatment of Simple Compound Fractures. Walter G. Stern.
2. Bone Grafting and Its Clinical Application. J. J. Kurlander.
3. Some of the Relations of Pediatrics and Obstetrics. R. E. Krigbaum.
4. The Incidence and Mortality of Congenital Lues at the Babies Dispensary and Hospital of Cleveland. C. W. Burhans.
5. Co-operation and Correlation Between Laboratory and Clinic. Howard T. Karsner.
6. The Prediabetic Stage. Henry J. John.
7. When Shall We Do the Ethmoid Operation? William Mithoefer.
8. The Use of Radium in General Surgical Conditions with Special Reference to the Uterine Conditions. L. G. Bowers and E. R. Arn.
9. Preoperative and Postoperative Radium Therapy: Report of Cases, Dosage and Methods. Benjamin R. Kirkendall.
10. Radium in Dermatology. C. J. Broeman.
11. Malignancies of the Colon and Their Consideration. John F. Erdmann.

7. When Shall We Do the Ethmoid Operation?—William Mithoefer asserts that the ethmoid operation should never be done without a careful study of each individual case. During the progress of examination, which may require several weeks or months, simple means, such as infraction of the middle turbinate, treatment of the ethmoid floor, correction of a general systemic dyscrasia, or treatment of a nasal neurosis, should be tried. By the use of these simple means the patient is often relieved and operative intervention is not required. Bacteriological examination of the nasal discharge is of prime importance. Neglect of this precaution may mean the death of the patient. Close analytical study brings better results in the end and prevents the operation from falling into disrepute; it also demonstrates the important fact that latent disease of the ethmoid is of frequent occurrence and may be easily overlooked if the examination is done in a cursory manner.

9. Preoperative and Postoperative Radium Therapy: Report of Cases, Dosage, and Methods.—Benjamin R. Kirkendall, after an experience of four years' use of radium on 817 patients, concludes that cases of carcinoma of the vagina and prostate are best treated with radium alone. Cases of cancer of the cervix and uterus, which have responded well to the treatment, should rarely be hysterectomized later, as distant, quiescent diseased cells may be stimulated to recurrence. Radium can be used to great advantage before surgery to make nonsurgical cases operable. Radium after surgery may make a success of the operation. Its use in recurrences is usually palliative, but it may cure.

11. Malignancies of the Colon and Their Consideration.—John F. Erdmann. (See MEDICAL RECORD, Dec. 3, 1921, c, 23, p. 1006.)

Long Island Medical Journal.

November, 1921, xv, 11.

1. Brain Abscess Versus Lethargic Encephalitis. Henry G. Webster.
2. The Non-Operative Treatment of Retroversion of the Uterus. William H. Cary.
3. Radium. Chester Tilton Stone.
4. Treatment of Mild and Convalescent Tuberculosis Patients with Limited Means. Edgar T. Shields.
5. The Result of Examinations of 890 School Children. David H. Hallock.
6. Peculiar Traumatic Rupture of Kidney. Sturdivant Read.

2. The Non-Operative Treatment of Retroversion of the Uterus.—William H. Cary classifies retroversions of the uterus into non-operative and operative. The non-operative he groups into (1) those in which treatment is not required, as the symptomless, uncomplicated cases and those complicating neurasthenia or gastroenteroptosis; (2) those suitable for pessary treatment, that is, those occurring during the child-bearing period and puerperium and those in which sterility is the only complaint; (3) those in which tamponing or other palliative measures are indicated. In this group are adherent retroversions in which operation is refused, the cases of retroversion complicated with adnexal disease in young women, and cases of oopharitis, ovary prolapse, and chronic uteritis, in which palliative measures are applied preparatory to the employment of the pessary. The contraindications to pessary treatment are adherent displacements, pelvic inflammations of ovary tube or parametrium, vaginitis (gonorrheal foci suspected), pruritis (leucorrheal or diabetic), preceding vaginal operations (at least one week), hyperthyroidism (some cases), and where medical care is unavailable. The essentials to successful pessary technique are assistance, knee-chest position for reposition, gentleness, clean technique, many pessaries of all kinds, careful fitting, proper after-care and instructions to the patient. In summarizing Cary says a gynecologist's qualifications can best be measured by his skill in the management of retroversion of the uterus. Because cases are not properly selected for operative and non-operative treatment—by far the larger number belonging to the latter group—and because the proper operation is not chosen for the different types of posterior displacements, the results attained in the treatment of this disorder are often disappointing. If

truthful statistics could be tabulated giving the percentage of relapses after operations for retroversions, especially when pregnancy has occurred subsequent to operation, the figure would be appalling. It would seem that no gynecological operation is so often needlessly done. The time is at hand when operations done solely for the correction of uncomplicated retroversion of the uterus should be condemned.

Le Progrès Médical.

December 24, 1921, xlix, 52.

Pathology of the Instincts.—Laignel-Lavastine delivered a lecture on this subject, based in part on the work of Pieron, Larguier des Bancels and the Englishman Rivers. The subject of instinct is many-sided and comprises such well marked behavior as the instinct of self-preservation, the instincts toward nutrition and reproduction, the various defense reactions, the gregarious instinct, etc. The rôle played by them in psychiatry has been neglected save in certain directions such as the innumerable perversities of the sex instinct. The author seeks to show that delusions of persecution represent aberrations of the instinct of self-preservation. Vanity and allied emotions are allied to the latter and in paranoia with its systematized delusions the ego is greatly magnified. The anxious states with the sensation of insecurity show the same want of touch with the environment in a smaller way. The author enumerates some cases, as that of a girl with chronic hallucinatory psychosis and hallucinations of special sense developed on a paranoiac basis. She believed that a band of sacrificers were after her and had already removed two of her cervical vertebræ. In another subject with persecutory delusions there was no paranoiac basis but an anxious state which supplied the substratum. In the melancholic these delusions are naturally found, as this psychosis may be of the anxious type. Several authors have reported combinations of paranoia with anxious melancholia.

La Presse Médicale.

January 18, 1922, xxx, 5.

Laminectomy for Lumbago.—Sicard and Forestier write of the condition variously known as chronic lumbar rachialgia, lumbarthria, chronic rheumatic lumbago, etc., of authors, which may not by any means apply to the same syndrome. Leri has isolated a type due to the presence of osteophytes and naturally the Roentgen rays at times make it possible to isolate some special mechanism. Attempts have been made to classify the painful affections of the spine through the underlying pathology, recognizing spondyloses and spondylites. There still remains a residue in which no objective findings or pathology figure. This is the familiar lumbago or simple lumbalgia. Its occurrence as an acute or subacute affection need not detain us here, but the chronic type of this affection is a serious incapacitating affection. Its characters are localization in the lumbar region, pain, certain contractures which result from a defense or antalgic attitude, and chronicity. The subject becomes crippled in standing or walking. Radiography is invariably negative. In June, 1917, after several years of invalidism, Dambrin performed laminectomy on a military man limited to the twelfth dorsal and fourth lumbar vertebrae. Adhesions were evident between the dura and the vertebral rings which bled when separated. Two months later the patient had quite recovered and joined his command. Four similar cases are recorded. The basic condition is probably a radiculitis or localized funiculitis, essentially bilateral. The sole clinical distinction between the two is that funiculitis is associated with some muscular rigidity or contracture. The laminectomy was evidently in part exploratory and in part a general operative procedure comparable to trephining in obscure cerebral disease.

Revue Médicale de la Suisse romande.

December, 1921, xli, 12.

Noma of Leucemic Origin.—Alikhan describes a case of an association so rare that no mention of it is said to occur in French literature. The patient was a woman of 24 years of negative antecedents. On February 5 her face began to swell—region of left cheek and submaxilla—the ear also giving symptoms. A diagnosis of erysipelas was made, and the patient sent to the Cantonal Hospital. Here she received a thorough examination and on the 18th the diagnosis was made of noma of the buccal mucosa, with marked general reaction. Officially the diagnosis was entered as gangrenous stomatitis, with general intoxication. Death occurred in coma after a fortnight in the hospital. The diagnosis of acute myelogenous leucemia was made at the autopsy. In commenting on the case the author sums up as follows: Gangrenous stomatitis may rarely complicate acute leucemia, therefore when confronted with a case of clinical noma one should always study the blood counts, as in some of these cases at least the mechanism is obscure. In the presence of lecemia surgery would probably be of no value. The patient was given neosalvarsan without benefit and the bacteriological studies threw no light on the pathogenesis. In regard to literature, Askanasy, the Swiss pathologist, published in German in 1904 an article on ulcerous processes in the digestive tract in acute leucemia which contains a mention of noma and in which it is suggested that desquamation within the month as a result of a deposit of lymphoid tissue in the submucosa favors the development of that accident.

Schweizerische medizinische Wochenschrift.

December 22, 1921, li, 51.

Geographical Distribution and Polyclinic Treatment of Epilepsy.—Wyrsch gives statistics of epileptics in Unterwalden and in Zürich who are under treatment. In the former Canton the population is 1.846 per 1,000 inhabitants, while under polyclinic treatment in the city are slightly over 2 per 1,000. According to these figures, the total, including the unregistered, is high in proportion to the incidences which are mentioned in textbooks. Two per 1,000 is the mark usually quoted, but in Zürich there must be over 3 per 1,000. Over a third of all cases appear about the time of puberty and the three causal factors in the order of importance are alcoholic heredity, heredity outside of alcohol, and injury. The treatment is thoroughly unsatisfactory and may be summed up as 21 per cent. of improvement, with half the Unterwalden population unable to support themselves. There is about 78 per cent. of improvement in the city dispensary cases under salt-poor diet and some form of bromine medication. Bromine does not appear to give better results in one causal type than another. Of the bromine-intolerant patients, two-thirds have improved under luminal and salt-poor diet. Further, half a gram to a gram of luminal will spare daily 1.5 to 2 gm. of bromine. Luminal is toxic and cannot be pushed. It appeared to improve the association facility in one patient tested. A psychiatric polyclinic seems a decided asset in a community to handle the ambulant uninterned material. Unterwalden is a rural hill community with a sparse population relatively free from degeneracy. The total number of epileptics for the entire Canton was fifty-seven. There is no mention of any institutional epileptics in the Canton, but as a rule such inmates are added to the uninterned, which sometimes gives a false idea of the amount of epilepsy in rural districts. The epileptic naturally seeks the city and when interned is usually moved back to the country, as most of the asylums are in rural districts, and this movement tends to disturb statistics.

Case of "Bouba" in Rio de Janeiro.—Bouba is a form of yaws, although in past years the name was applied to syphilis and was even used to describe some infectious disease before the discovery of America, the primary significance of the word boubas being pustules. The patient was a young man who, while working as an excavator developed lesions on his feet, then on the nates and head and finally on the genitals. The latter location is very unusual. The Wassermann was positive and the *Spirocheta pertenuis* present in great abundance. For some unknown reason the case was refractory to neosalvarsan.—*Brazil Medicó.*

Book Reviews.

CLINICAL SURGICAL DIAGNOSIS FOR STUDENTS AND PRACTITIONERS.—By F. DE QUERVAIN, Professor of Surgery and Director of the Surgical Clinic at the University of Berne. Third English Edition. Translated from the Seventh Edition by J. SNOWMAN, M.D. Price, $14. New York: William Wood & Co., 1921.

SINCE the appearance of the second English Edition in 1917, Professor de Quervain has issued two further editions of the original work. The present translation is therefore made from the seventh German edition. The 841 pages of the 1917 edition have been increased to 914, and the illustrations number 731, an increase of 126. The subjects which pertain to civil surgery have been fully revised and brought up to date, while it has now been possible to incorporate fully the lessons of the war, which will be found distributed under the proper captions, and not, as heretofore, in a single chapter on military surgery.

A MANUAL OF MIDWIFERY FOR STUDENTS AND PRACTITIONERS.—By HENRY JELLETT, B.A., M.D., F.R.C.P.I., L.M. Late King's Professor of Midwifery in the School of Physic, Trinity College, Dublin, and DAVID G. MADILL, B.A., M.B., B.Ch., B.A.O. (Dublin), L.M. Gynecologist to Monkstown Hospital. Third edition. Price, $10. New York: William Wood & Company, 1921.

THE authors of this well-known textbook are respectively an ex-master and ex-assistant master of the Rotunda Hospital, and the present edition is apparently the logical culmination of the short treatise on midwifery first published by Jellett in 1897. The latter volume contained but 323 pages, while the present one contains 1199 pages, and includes articles by a number of subeditors who are not obstetricians but identified with anatomy, clinical medicine, pathology, and forensic medicine. There are 570 illustrations, not including 20 plates. This volume well shows that the day of the small, compact, one-man textbook has vanished, at least for the time.

OPERATIVE SURGERY.—By J. SHELTON HORSLEY, M.D., F.A.C.S., Attending Surgeon St. Elizabeth's Hospital, Richmond, Va. Illustrated by Miss HELEN LORRAINE. Price, $10.00. St. Louis: C. V. Mosby Company, 1921.

THE appearance of a new work by a surgeon of Dr. Horsley's repute is an event in medical literature. Without disparagement to his other attainments, it may be said that the author is perhaps best known for his brilliant work in plastic and reconstructive surgery, and it is therefore not a matter for surprise that he lays special emphasis in his technique on the restoration of the physiological function of the parts. As he says, "Merely following anatomical landmarks and making a beautiful dissection with accurately placed ligatures and sutures should not be the sole aim of the surgeon. . . . It is even more important that the operation results . . . in the restoration of the physiology of the tissues or organs." The author has made no attempt to describe all possible operations, but notes only those which he has himself performed, or which are regarded by him as the most suitable in the special case under consideration. The work is profusely, though judiciously, illustrated, and what is to be specially noted, the pictures, 613 in number, are for the most part entirely original, though some few have been redrawn from other works. They are all beautifully executed. The book is one that should be in every surgeon's library.

THE FOLLY OF NATIONS.—By FREDERICK PALMER, Author of "The Last Shot," "My Year of the Great War," "America in France," etc. New York: Dodd, Mead & Company, 1921.

FOR twenty-five years as war correspondent Frederick Palmer has seen all the wars of any consequence. He has studied the causes of these wars and of others more remote, and analyzes the emotional complexes that lead to war and its effects on men's minds. Most wars, he finds, have come from differences in language, race, habit, and custom. He believes the time has come when these need no longer stand in the way of universal peace. He presents the usual arguments of the militarists, showing why we must have wars as long as human nature remains as it is, and then endeavors to show the fallacy of these arguments, but fails utterly to convince us that the human emotions and passions that have incited wars in the past are not as operative today as they always have been. The time that has elapsed since the ravaging of Belgium and the sinking of the *Lusitania* is far too short to justify the belief that brutality which needs must be controlled by force no longer exists. Mr. Palmer traces war to selfishness and greed. Surely, when we need an armed force to guard our mail trains within our own borders and have an unrepentant Germany without, a disrupted Russia, and general political and social confusion everywhere, there is no ground upon which to base the assumption that we have progressed to the stage where we are ready for peace however alluring and desirable it may be theoretically. In a world as it is at this stage of human progress it may still be well to remember Emerson's lines, " 'Tis man's perdition to be safe when for the truth he ought to die."

THE PRACTICE OF UROLOGY.—A Surgical Treatise on Genito-Urinary Diseases, Including Syphilis. By CHARLES H. CHETWOOD, M.D., LL.D., F.A.C.S., Former Professor of Genito-Urinary Surgery, New York Polyclinic; Visiting Surgeon to Bellevue Hospital; Consulting Urologist, French Hospital; Special Consulting Surgeon to Knickerbocker Hospital, St. John's Hospital (L. I. City), Nassau Hospital (Mineola), St. Agnes and White Plains Hospital; Member American Association of Genito-Urinary Surgeons, American Urological Association; L'Association Internationale D'Urologie, etc. Profusely Illustrated. Third Edition. Price, $8.00. New York: William Wood and Company, 1921.

WHEN any book attains to a third edition in eight years it becomes a standard work on its subject. Such is the volume under consideration. Despite the minor changes and additions, this third edition shows its author's handiwork in modern nomenclature and description of newly accepted therapeutic agents. The sanity of thought and wisdom of judgment which pervaded the previous editions justified the praise bestowed in these columns (MEDICAL RECORD, March 29, 1913, page 726; and January 13, 1917, page 80). Because of this volume's maintained standard of excellence the reviewer predicts its survival and a continuance of its popularity.

KRANKHEITEN DER ÄUSSEREN GESCHLECHTSTEILE und der Vagina, der weiblichen Blase, des Harnleiters und der Harnröhre. Gonorrhoe, Syphilis und Tuberkulose der weiblichen Geschlechtsorgane. Von Prof. Dr. HENKEL, Direktor der Universitäts-Frasenklinik Jenas. Leipzig: Georg Thieme, 1921.

THIS brocure of 95 pages is one of a series of five numbers devoted to the "Diagnostic and Therapeutic Errors of Gynecology and their Prevention." There appears to be no valid reason for regarding the work as especially diagnostic in scope, for there are but few illustrations, no illustrative cases, no talbles of differential diagnosis, etc. The proper title of the volume as stated above, covers the content of the book sufficiently.

DIAGNOSTISCHE UND THERAPEUTISCHE INTÜMER UND IHRE VERHÜTUNG IN DER GEBURT. Von Geh. med.-Rat Prof Dr. FEHLING. Leipzig: Georg Thieme, 1921.

THIS brochure is the obstetrical section of a series devoted to the diagnostic and therapeutic errors in gynecology and their prevention. It comprises 102 pages and as the title implies is devoted to labor, similar volumes covering gestation and the puerperium. The diagnostic errors deal naturally with the positions of the fetus *in utero*, life or death of same, twin pregnancy, causes of dystocia, recognition of preclampsia, rupture and inversion, causes of hemorrhage, etc., etc. The chances for therapeutic error are naturally numerous and costly. The subject does not lend itself especially well to the author's plan and the book could have been written as well under the title of "management of labor."

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON SURGERY.

Stated Meeting, Held January 6, 1922.

DR. CHARLES EVERETT FARR IN THE CHAIR.

Result of Old, Conservative Treatment of a Double Forearm Compound Fracture.—Dr. CLARENCE A. MCWILLIAMS presented this patient.

Extensive Plastic Operation of Face, Following Excision of Epithelioma of Cheek and Orbit.—Dr. JOSEPH E. J. KING presented this patient, an elderly woman whose trouble began some six years before she came under his observation. She had an epithelioma of the lower eyelid on the right side which had been treated with caustics, pastes, ointments, etc. In March, 1920, she came to the New York Skin and Cancer Hospital with a basal-cell epithelioma involving the eyelids, eyeball, orbit, frontal sinus, anterior ethmoid cells, side of nose, cheek, malar bone, and antrum of Highmore. The growth was excised by making an almost circular incision, the contents of the orbit were removed, the frontal sinus, ethmoid cells, and the antrum were cleaned out, so that the tumor was removed en masse with a fair margin of healthy appearing skin surrounding it. The defect thus made was dressed with dakinized gauze dressings for about 2½ months, during which time the wound had become smaller and the surface covered with firm healthy granulation tissue, except that certain parts of the cavity were lined with mucous membrane, remaining from the sinus and antrum. The cavity was so large and deep that the skin flap-to-be could not be carried down into the depths and completely obliterated the cavity. This also could not be done on account of the cavity containing mucous membrane. Therefore it was necessary to cover the defect with a flap lined with epithelium on both sides, stretched across the cavity like a drum-head, leaving an air cavity beneath which communicated with the nasal cavity. In order to allow of sufficient drainage, the lateral wall of the right nasal cavity was removed, making a drainage opening about the size of a five cent piece. On June 4, 1921, a temporo-frontal flap, bearing a Wolff graft on its under surface, corresponding to the area which would cover the air cavity, was lifted up (after the Wolff graft had been in place for two weeks and had become firmly attached to the under surface of the flap), and sutured into position. The margin of the flap was sutured to the freshened margin of the defect. The incision was carried up into the hairline at the upper inner border of the flap so as to obtain hair-bearing scalp for reconstructing the inner two-thirds of the eye-brow. The pedicle of the flap "buckled" in the temporal region, the temporal vessels being the base of supply for the flap. The remainder of the ungrafted portion of the forehead was covered with Thiersch grafts. This operation was done under colonic anesthesia as well as the first incision operation. On August 16, 1921, the major portion of the skin of the "buckle" was superficially excised, so as not to divide the blood vessels and lymphatics of the pedicle. The patient was soon discharged from the hospital to her home. The flap had healed kindly in position, was not edematous, and was well nourished. The patient was able to irrigate the cavity behind the flap by passing a curved female metal catheter through the opening in the external nasal wall. With a pair of dark glasses and with her hair properly arranged, the defect was not of an unsightly appearance and was hardly noticeable on casual observation. She worked as a cook and washwoman until November 2, 1921, when she returned for examination. There was a recurrence of the epithelioma about the size of a pea at the upper inner corner of the flap at the bridge of the nose and also recurrence along the inner lower border of the flap, external to the ala of the nose. There was an interval of healthy skin between the two lesions. On November 5, 1921, the recurrent lesion over the bridge of the nose was excised, and a forehead flap, using the left angular artery, was turned down into position over the defect and sutured. About ten days later, the lesion external to the ala was excised, and a flap from the right cheek, extending downward and forward over the mandible, was lifted up and sutured into position. When the excision was done, it was necessary to extend the incision into the flap, and thus remove a portion of the flap adjacent to the lesion. The cavity behind the flap was inspected and found to be clean and free from recurrence of the growth. The under surface of the original flap was in good condition and had the feeling of soft skin. This was the old Wolff graft. After three weeks, the pedicle of the flap was divided, and the distal and proximal ends were sutured into place. This completed the operative work for the two recurrent lesions, all of which was done under local anesthesia. The patient was presented, showing the various defects which had been repaired with three pedicle flaps; temporo-frontal, frontal, and cheek. The last was the only one divided. It probably would have been better to have left the pedicle undivided, for these flaps did not become edematous when the pedicle was not divided due to the fact that the lymphatics were preserved.

Dr. SINCLAIR TOUSEY asked whether this patient had been treated with *x*-ray or radium.

Dr. KING replied that the patient said she had been treated with the *x*-rays somewhere in the country, to what extent he did not know. She had had no radium treatment. In reply to a question as to whether anything such as gauze had been placed between the Wolff and the Thiersch graft, Dr. King said nothing had been interposed. Aside from using a small rubber tube drain for 24 hours for the initial oozing, no drainage was needed. There was usually a serous accumulation between the grafts, which was evacuated by inserting the end of a forceps between the skin edges where the drain was removed. This might be repeated every few days. None had become infected causing loss of the grafts. He preferred a flap from the forehead or face rather than from the arm for several reasons; the blood supply was better, it was more convenient, it was more comfortable for the patient, the color of the flap was more nearly that of the remainder of the skin of the face. Arm flaps remained white much longer and were more conspicuous. The dressing used on practically all of the plastic cases was a gauze dressing moistened in Dakin's solution. This dressing was changed every day and sometimes twice a day. In order to keep the Wolff graft in position beneath the flap when it was first placed there, he closed the incision with interrupted sutures of black silk, which sutures just barely caught up the margin of the graft to keep it stretched out in place until it became adherent to the under surface of the flap.

The Efficient Treatment of Compound Fractures.—Dr. CLARENCE A. MCWILLIAMS read this paper. (See page 354.)

Essentials in the Treatment of Compound Fractures. Dr. JOHN J. MOORHEAD made this contribution, in which he classified fractures into three grades as follows: (1) Punctured wound of soft parts; fracture of the transverse or oblique type. (2) Lacerated wound of soft parts, with or without stripping of skin and fascia; fracture often comminuted. (3) Crushing wound of soft parts with or without maceration; fracture usually comminuted. This grading was not absolute and in each grade many variants would be noted. After discussing the differences between compound fracture of civil life and those of military life and mechanical and chemical methods of sterilization, Dr. Moorhead mentioned as essentials of routine treatment, irrespective of the grade of fracture or type of wound, the following: (1) First aid sterilization; (2) immediate temporary reduction, and (3) immobilization. For first aid sterilization preference was given for the free use of iodine about and into the wound. Thereafter a wet dressing of iodine water was applied (tincture of iodine one dram, saline solution one pint), next was the administration of an immunizing dose of tetanus antitoxin in divided small doses to test out and prevent anaphylaxis. A few drops of antitoxin was mixed with 5 c.c. of saline solution and injected. After a wait of 10 minutes an identical amount was injected; then after a similar interval one-third of the remaining antitoxin was injected. If after 10 minutes no reaction appeared, the remaining antitoxin could be given with safety. A reserve hypodermic of adrenalin solution was at hand in the event of unfavorable reaction. Im-

mediate temporary reduction should be attempted by traction or suitable manipulation for experience taught that early reduction meant easy reduction, lessened local irritation, and the prevention of further traumatism. Immediate immobilization should not be of a too constricting type; it should first of all be safe, next simple and efficient. The Thomas splint for the lower extremity met well all requirements. The Jones splint for the upper extremity was excellent; the hinged Thomas splint was almost equally effective. The second phase of treatment was now entered upon and depended upon the grade group of the fracture. If the compound fracture was of the first grade, after removal of the first aid dressing, the area about the wound was cleansed with benzine or gasoline, tincture of iodine was injected under pressure and then a dressing of iodine water applied, the splintage was selected and the patient put to bed with the part elevated. If the puncture was larger than the diameter of a lead pencil, a small rubber band was inserted for drainage. In the second group mechanical sterilization, partial suture and drainage was the treatment followed, except when: (a) a period of 36 hours had elapsed since the receipt of the injury; (b) the fracture was in a well-muscled area so that complete debridement was impossible (femur fractures were in this group); (c) the fracture was much comminuted so that the bony fragments were detached to such an extent that they virtually acted as foreign bodies; (d) there was gross damage to important vessels, vascular or neural. Primary or immediate suture without drainage was rarely employed by the writer because it was dangerous and gained little in point of time over partial suture with drainage. The safest procedure in the average case was complete debridement, the placing, but not tying of sutures until the fourth day. This was virtually intermediate or primo-secondary suture. The iodine dressing was unchanged until the sutures were tied and if the clinical evidences of non-infection were not well enough established, the bacteriological examination of the wound secretion would determine the presence or absence of streptococci. With a moderate staphylococcus infection, primo-secondary suture with drainage added little if any hazard. Late suture was employed in that group in which infection required a relatively long period before it came under control. In the third group, where the wound was of a crushing type, the soft parts more or less macerated and the bone much comminuted, the patients were often in shock so that mechanical sterilization was hazardous. If conditions permitted debridement was carried out, hemostasis was made as absolute as possible, stitches were placed but left untied, and iodine water dressing applied. Late suture was often necessary in this group. Drainage in any of the grades was rarely used for more than 48 hours as thereafter it tended to produce rather than prevent infection. This was the management practiced in the vast majority of cases; but in the exceptions previously mentioned, the time element, the site and type of the fracture in relation to contiguous heavy muscles, and the damage to vessels made mechanical sterilization inadvisable. Recourse was had in this group to late closure after chemical sterilization and the technique of introducing the chosen antiseptic was, as already indicated, almost a matter of individual choice and experience. Dakin's solution applied by the Carrel technique was excellent, but in many instances could not be employed because of inability to obtain the fresh solution or inability to apply the technique which was a most important and time-consuming part of the treatment. Personally, Dr. Moorhead said he had discontinued the Carrel-Dakin treatment for both of these reasons. Reliance was placed more upon iodine, open air and sunlight and red light than upon any other combination in cases in which infection was already present. They had been making some observations at the Post-Graduate recently as to what might be termed the germ content of various skin surfaces of the body, using for the experiment a large number of unselected apparently normal individuals. Thus far they had proven in the laboratory what we knew clinically, namely, that the surface of the body harbored organisms of many kinds, particularly staphylococci. The importance of this observation in relation to compound fractures was that sound skin about the wound should not be neglected in our attempts to prevent or limit infection. Dr. Moorhead concluded that: (1) Efficient first aid treatment often determined the outcome; (2) iodine sterilization was the treatment of choice in the minor grades; (3) mechanical sterilization was the treatment of choice in the severe grades; (4) primary suture was rarely permissible; primo-secondary suture was the safest; (5) in old cases, late or secondary suture would shorten convalescence; (6) immediate reduction and immobilization were important elements in treatment.

Dr. H. H. M. LYLE said that with reference to the principles in the treatment of compound fractures in civil or military life, the first thing was immediate splinting. That was the most important point in first aid. All who gave first aid should be taught the proper application of the splint. It was due to the proper application of first aid splints more than to any other thing that they had been able to bring down the mortality from compound fractures. Dr. Lyle objected to the Carrel-Dakin method being called a chemical method. It was both a mechanical and a chemical method. He had begun using the method at about the same time that they began to use it in the De Page Hospital. The third important point in the treatment of compound fractures was suspension and traction, the proper balancing of the muscles. The value of those three things were proven in the war; they were not merely ideas or speculations. A fourth principle definitely proven was that of Willems. All other things were matters of opinion, but these had been demonstrated. As to the use of iodine, the Tenth French Army stopped the use or rather the abuse of iodine. Dr. Lyle said he still had some pictures showing the effects of iodine. It had produced burns that were worse than the original wounds. In another hospital iodine had been used along with Dakin's solution. Nobody who had seen the facts could say anything else than that the Carrel-Dakin method was superior to iodine. The facts were there. In order to prove the proposition one must have a number of patients and they must be treated at the same time. This had been done and the facts as he had given them had been demonstrated. Dr. Lyle expressed the opinion that the interne or hospital that could not use Dakin's solution properly should go out of business.

Dr. JOHN F. CONNORS said he was a firm believer in the use of iodine before he went to France. As to the use of iodine and Dakin's solution in compound fractures, he had charge of 12 wards with 120 cases of compound fractures of the femur. The men in charge of the wards were told by him that they might use anything they wanted to use provided they gave him good results. The best results were obtained at first by a man who used Dakin's solution but he did not use it as Carrel recommended. He used it in the following way: He packed all wounds with 2 x 2 sponges soaked with Dakin's solution and removed and replaced every three hours except at night. He worked hard and obtained wonderful results. He was then transferred to another ward and told to try iodine. With iodine he obtained exactly the same results. It was not the solution but the man behind the solution. So far as the treatment of compound fractures went, Dr. McWilliams had started a good movement and the war had taught a good lesson. If fractures were properly splinted at first, devitalized tissue removed and a good position of the bones secured, one had accomplished about as much as was possible.

Dr. SINCLAIR TOUSEY stated that he had had a case which illustrated a principle connected with the treatment of compound fractures not alluded to thus far to-night. The case in question was a compound fracture of the tibia and fibula, with severe crushing, and a gap of a couple of inches between the two fragments of the tibia without any corresponding destruction of the fibula, so there was no difficulty in securing a full length fibula. This was in the days before they knew anything about filling in defects with bone chips. It came to his mind to allow the defect to fill with blood clot using careful antisepsis. The man left the hospital with a fairly sound limb. He did not see the patient for some years. Later he met him accidentally and found that the tibia with the defect was as sound and complete as the other.

Dr. JOSEPH E. J. KING said that compound fractures of the tibia were met with frequently in the hospitals, and the treatment of those fractures was a question brought up almost weekly at the conferences. One must decide whether to debride and suture up the wound, or debride and leave open, or not to debride but treat with a wet dressing. The typical case in his mind was a compound fracture of the tibia, from within, where the perforating fragment was withdrawn into position when the leg was splinted and traction was made. He had seen several cases of this type recently. One patient was thrown from his bicycle on a country road. The doctor who treated him put the limb in a plaster cast. On account of the pain and discoloration in the limb, the cast was removed on the third day. When seen by Dr. King on the fourth day, the leg and thigh up to the inguinal region were gangrenous and crepitated, and the patient died a few hours after high amputation of the thigh on the afternoon of the fourth day. The culture showed Welch bacilli and streptococci. A somewhat similar case was debrided within a few hours after the injury, washed out, and sutured. This case also developed a Welch bacillus infection, and the limb was amputated. Some cases were debrided, sutured, some with and some without drainage, and no infection occurred. Some only had a wet dressing applied after the wound was swabbed out with iodine and they did well. The question was: should one debride as a matter of safety in all cases or not?

Dr. JOHN C. A. GERSTER said it was a great pity that the principles just enunciated were not recognized and followed by many who accepted the responsibility of treating any compound fractures which might come their way. In a recent series of over 300 fractures of all types occurring in New York he had seen all sorts and degrees of needless deformity and preventable disability. Some of these patients had received hospital treatment, others had been given office treatment. If standardization of treatment as suggested by Dr. McWilliams were more widely adopted by the profession at large, it would be a great boon to humanity.

Dr. EDWIN BEER stated that Dr. McWilliams treatment was recognized as the correct treatment of war fractures, but the question came up whether it would be introduced in the treatment of civil compound fractures. He thought that if these wounds in civil practice were cleaned out and iodinized most of them would do better than the cases Dr. King had cited, for it was a fact that almost all these cases got well without infection. Those that were severely crushed would have to be laid wide open, debrided, and treated by the Carrel-Dakin technique.

Dr. JAMES N. WORCESTER pointed out that although they had learned the value of immobilization of compound fractures during the war, this was not being carried out in our cities. For a number of years he had been interested in fractures at Bellevue. When a fracture was received at other hospitals it was regarded as a bugbear and was transferred to Bellevue. If an ambulance surgeon brought a fracture case into other hospitals he was reproved and usually was careful not to repeat it. For years it has been a rare occurrence to have fractures brought in with any adequate immobilization. The use of a Thomas splint was a rarity. At Bellevue they had tried to have other hospitals cooperate with them and had even supplied them with Thomas splints hoping that in time surgeons would insist upon primary immobilization. Until the time came when all compound fractures were primarily splinted the results would be exceedingly poor.

Dr. FENWICK BEEKMAN said compound fractures might be classified into two types according to the way in which they were produced. In one class the skin wound was produced from within out, and in the other from without in as in crushing injuries caused by being run over by a wagon. These two types to his mind should be treated differently. Those produced from within out were not as likely to be as diffusely infected as those from without in. The only danger of their becoming infected was that the points of bone that had pierced the skin might pick up infection and carry it in, and then the infection was likely to be more limited. In the compound fracture produced from without there was likely to be dirt and clothing ground into the wound. This type should be treated as the war wounds were treated, with debridement and Carrel-Dakin treatment. Of course all cases of compound fracture should be splinted immediately.

Dr. WALTER M. SILLECK said there was one thing about splinting fractures or any other injury requiring subsequent dressing, and that was to see that the splint was so placed and fashioned that it was possible to dress the wound without removing the splint. In applying the splint there should be sufficient immobilization so that the wound could be dressed without taking off the splint.

Dr. CHARLES EVERETT FARR said that he should regret having it go out from this meeting that the Carrel-Dakin method was the official and only method of treating compound fractures. If this were allowed to go out some men might spill Dakin's solution about the operating room and say they were using the Carrel-Dakin method. It would be a mistake to standardize the treatment of fractures to the Carrel-Dakin method. One obtained bad results with all methods and if this were allowed to go out the courts would hold that Dakin's solution should have been used. He hoped it would not go out from the meeting that there was a standard method for treating compound fractures. He did not like the division of compound fractures into civil and military fractures. Of course he understood what was meant by that division, but it was not an accurate classification and led to confusion. He would like to see that distinction corrected in the literature. As to the use of iodine under dry pressure, he had used it, and had found that iodine under any pressure might cause a condition something like gangrene. Some slurs had been cast on the old method of treating compound fractures. He had been brought up on those old methods and had had something like 90 per cent. primary union without the use of Dakin's solution and without iodine, but with proper splinting. There was much criticism because the Thomas splint was not applied in first aid. It must be remembered that it took time to apply a Thomas splint and if a compound fracture was to be brought to him he would rather have it without the splint than with the splint improperly applied. An ambulance surgeon might put on a splint improperly and the patient be brought in and the interne seeing that a splint had been applied might neglect to give the patient attention for some time, since he could not see what was underneath the splint. Furthermore, the hospitals might not wish to send splints to Bellevue to be lost. There were simple ways of treating compound fractures, but the application of a splint was dangerous unless properly done.

Dr. DANIEL M. STIMSON said he had served on the staff of the Hudson Street Hospital before the days of Dakin solution at a time when the house surgeon had responsibilities. It was then the invariable rule that compresses should be used until the patient reached the hospital, when he was taken to the operating room, and many were sewed up, and fully 90 per cent. resulted in primary union. Compound Potts' fractures were sewed up without drainage, and some fractures of the elbow were sewed up with very little drainage, and Dr. Stimson said that he was satisfied that if as good results were obtained today as they obtained the profession would have gained a great deal. It was a slur to say that fractures were not properly treated at the Hudson Street Hospital. They were properly treated; they were treated at once and not allowed to wait two or three days until the attending surgeon came around.

Dr. JOSEPH E. J. KING said that during the latter part of 1915, 1916, and the early part of 1917 he was in a reserve hospital in Germany where he had observed probably between 500 and 600 old compound fractures, *i.e.* cases from three to four days to several weeks after the injury. Therefore, what he had to say did not have directly to do with the very recent fractures now under discussion. The injuries involved the joints in many instances and there were also old cases in which sinus formation had taken place. These wounds were irrigated with iodine solution, some were packed with iodine or iodoform gauze. A number of the patients with old fractures were up walking about the wards for a long time without debridement, or radical operation, on account of fear of violent infection following the operation. Several developed erysipelas

with septicemia and died, cases which in a short time would have been transferred to another hospital for chronic cases. Dakin's solution was not known of until the last few weeks in 1917, and the Carrel-Dakin treatment was not done. When he returned to this country, he treated a number of cases by radical operation followed by the Carrel-Dakin treatment. The results obtained were very much better than by other methods as all knew who have had similar experience. Any man who could not appreciate the difference in the two methods of treatment either never used the Carrel-Dakin method properly, or he would not acknowledge what he saw.

Dr. REGINALD R. SAYRE said that the men who said that fractures were treated in a most "rotten" way during the last fifteen years were right; they were not treated as well as they were thirty years ago. Thirty years ago the surgeon was interested in a patient with a fracture but after he found that he could open the abdomen and take out gallbladders and appendices with comparative immunity to the patient he went on seeing how much of his anatomy he could take out and he did not want to be bothered by the common or garden fractures. Fractures came to be treated not as emergencies but were simply attended to when the surgeon had nothing else to do. If the patient recovered with a shortening or 45 degree deformity it was a pity but the surgeon was more interested in actinomycosis cysts or some other weird thing that happened only once in a while. Then the war came and we looked about and realized the horrible conditions that resulted from our inadequate ways of treating fractures. Something had to be done and we went to work to learn how to apply a splint so that we did not have a wabbling fracture. The treatment of fractures was like a great many other things, there was a great difference in doing a thing the way a man who invented a procedure intended it to be done and the way some one else thought it ought to be done. There were different ways of employing the Dakin solution and the different results were according to the differences in the intelligence with which the method was carried out.

Dr. MCWILLIAMS, in closing the discussion, said that in answer to what Dr. Moorhead had said of Dakin's solution, he thought it was, as Dr. Lyle had said, that one obtained a mechanical as well as a chemical effect. One of the most valuable effects of Dakin's solution was simple irrigation. If one packed a wound with gauze it soon became very foul and the pus-soaked gauze retained the infection. Iodine solution acted as an antiseptic for a half hour or an hour, but with Dakin's solution properly employed, one had the constant irrigating effect, together with its antiseptic action for the whole 24 hours. If the tablets had an antiseptic effect, it was something worth while paying attention to. The Abbott tablets made a good solution. How Dakin would consider it, he did not know, but if one could not obtain fresh Dakin's solution, it was a perfectly good substitute. Dr. Moorhead's classification was complicated. He did not think it advisable to divide compound fractures up into four or five groups with a method for treating each group. To his mind it was better to divide them into simple punctured and larger compound fractures and to treat them accordingly. The safest thing was to dakinize the wound: there was nothing against it and it did not prolong the treatment but on the contrary shortened it. Dr. King spoke of debridement vs. Carrel-Dakin treatment. If one had to choose between the two, Dr. McWilliams would take the Carrel-Dakin treatment in preference to debridement. If one was in the country, where operative facilities were not at hand, one might use salt solution where one could not add debridement. Dr. McWilliams said Dr. Gerster went further than he had gone in his paper. He had not considered the treatment of old compound fractures where one had sequestra, etc. He believed there should be a standard treatment that the country practitioner as well as the city surgeon could adopt knowing that nothing better could be used. As to Dr. Farr's remark that if Carrel-Dakin treatment was adopted as a standard method "some would sling it about the operating room" and then say they had employed the method, he, of course, took it for granted that it would be used properly. Dakin had spent his life experimenting with all sorts of antiseptics and Dakin considered the question as to the value of this solution closed. Under these conditions it seemed that one could follow his experience rather than that of the men who merely dabbled in various antiseptics occasionally in the operating room. As it took the courts some time to come to the conclusion that *x*-ray examinations were necessary in the proper treatment of fractures, so it would not be long before the courts would look upon the Carrel-Dakin treatment of infections as the standard, necessary method and would consider the surgeon who did not use it as negligent in his duty towards the patient.

Dr. MOORHEAD, in closing the discussion, said it seemed to be a question of who won the war. He also had had some comparative experiences in the use of Dakin's solution, but what he had to say did not bear on war wounds but on the average civil wounds. He had tried to show from the clinical standpoint the large difference between the fractures of war and those of civil life. Of course automobile and other accidents sometimes caused the large crushing wounds of the soft parts with comminuted fractures which were in a measure comparable to war wounds, but there were many elements which were different, particularly that element having to do with infection. Dr. McWilliams had narrowed the question down when he said he did not care whether Dakin's solution or a substitute was used as it was not the solution but the technique that was effective in washing away infection and debris. It was the technique that was important. If there was the mechanical washing away one often obtained better results than with wet dressings. The point was not an insistence upon the use of the Carrel-Dakin solution but on the technique by which it was applied. He had seen Carrel-Dakin solution used very assiduously at the DePage Hospital, and he had also seen them using saline with the same technique, and the results were similar with both solutions; the technique was the thing that told. It was the careful regular instillation of the solution that washed away the debris which was one of the effective things. When he returned to this country Dr. Moorhead said he used the Carrel-Dakin solution until he had demonstrated that except for two conditions it was not usually needed; one of these was empyema and the other was osteomyelitis, whether the outgrowth of fracture or a metastatic lesion. Dakin's solution was the sovereign remedy for certain forms of osteomyelitis. The point he wished to emphasize was that the average run of compound fracture cases could be divided into three types, mild, moderate and severe and could be dealt with by the procedures outlined in the paper. He did not wish to be understood as saying that the Carrel-Dakin method was a bad form of treatment, but that it involved the use of a complicated technique and that the same results could be obtained with other simpler and more easily applied standard methods.

Pericecal Tumor, X-ray Diagnosis Benefit from X-ray and Radium Therapy for Postoperative Recurrence. Dr. SINCLAIR TOUSEY presented this communication. (See page 356.)

SOUTHERN SURGICAL ASSOCIATION.

Thirty-fourth Annual Session, Held at Pinehurst, N. C., December 13, 14 *and* 15, 1921.

THE PRESIDENT, DR. RANDOLPH WINSLOW OF BALTIMORE, IN THE CHAIR.

(*Concluded from page* 348.)

Further Umbilical Cases.—Dr. THOMAS S. CULLEN of Baltimore gave a brief report of all the umbilical cases coming under his observation since the appearance of his book on "Diseases of the Umbilicus," in 1916. He first described a most unusual procedure he adopted when operating on a man, 78 years old, for an umbilical hernia where many loops of bowel were densely adherent to the sac. After cutting the sac loose from the abdominal wall at the hernial ring he dissected the skin away from the sac and then separated loop after loop of bowel from one another until all loops were free. He then trimmed off all loose pieces of the sac wall from the various loops, leaving

only the densely adherent patches attached to the bowel. At least thirty or forty such patches were left on the gut. The bowel was then put back into the abdomen. The patient is now 82 years old, and is perfectly well. He reported cases of amniotic hernia, Meckel's diverticulum associated with an umbilical polyp, Meckel's diverticulum containing a pin in its wall, granulation tissue at the umbilicus, infected umbilicus and tuberculous abdominal abscess opening at the umbilicus. He also demonstrated moles and nevi at the umbilicus and reported atheromatous cysts, condylomata, papillomata and adenomyomata of the umbilicus. He referred to the blue navel, a new sign sometimes found in tubal pregnancy where rupture had taken place and where an abundant amount of free blood was present in the abdominal cavity. He related a case of pseudomucinous cyst at the umbilicus secondary to an ovarian cyst of this character. He also reported several cases of secondary carcinoma of the umbilicus and one case of secondary sarcoma of the umbilicus following primary intraabdominal growths.

The Straight Vessels of the Terminal Ileum.—Dr. R. L. PAYNE of Norfolk, Va., demonstrated by illustrations the presence of one, two, or three small straight vessels running parallel with the long axis of the small bowel and situated in the last inch and one-half of the terminal ileum. This anatomical feature was found to be constant in one thousand laparotomies and he recommended this distinctive feature as a means of quick recognition of the last inch and one-half of the terminal ileum with special reference to its value as a guide to the ready and accurate location of the appendix.

Final Results in 183 Cases of Myoma of the Uterus and Myopathic Bleeding, Treated with Radium.—Dr. C. JEFF MILLER of New Orleans stated that since early in 1914 to July, 1921, 230 cases were treated by radiation, but satisfactory records were recorded in only 183 cases. The most striking feature revealed in the review of the cases treated by surgical intervention and by radiation was the increasing percentage of myomectomies performed. The decision to adopt myomectomy in many cases formerly subjected to hysterectomy was prompted by the assurance that if myomectomy failed to control hemorrhage, radium could eventually complete the cure. With such assurance the scope of conservative surgery had been materially widened and the number permanently relieved and the percentage of pregnancies that subsequently occurred, further justified the conclusion. One hundred and seven of the 183 cases of this series presented myomata varying in size between small tumors detected during the course of diagnostic curettage to ascertain the cause of bleeding and the massive growths extending above the umbilicus. There were only a few of the latter group treated, practically all of which presented contraindications to operation. The ideal type for treatment with radium was the small or moderate sized interstitial myoma. Submucous growths, while responsive to radiation, should be selected with extreme care, owing to their well-known tendency to infection and sloughing after intrauterine manipulations. One hundred and two of the 107 cases reported complete relief from hemorrhage within five months after radiation. Two of the remaining required a second application before being relieved; two others were not relieved by a second exposure and the remaining case did not return. Fifty-seven cases returned within five years for other conditions, or for examination. In 37 of these the growths could not be determined at the subsequent examination, or were so reduced as to be classed as negligible. In two instances massive growths as large as a seven months' pregnant uterus had shrunk below the umbilicus. They had been bad surgical risks and were radiated to control bleeding. Both were subsequently operated on successfully. Seventy-six of the 183 cases were instances of myopathic hemorrhages, such as were commonly classified as chronic metritis, hyperplasia, fibrosis, uterine insufficiency, etc., a condition most frequent in women approaching the menopause. In this type radium approached more nearly the ideal specific than any therapeutic agent at command. Of 18 cases under 45 years of age, in which it was desirous of controlling bleeding without producing permanent cessation of menstruation, radium was applied from eight to twelve hours until from 200 to 800 mg. hours exposures were given. Six ceased to menstruate promptly, three reported a return in one year; one was profuse, the other two a normal flow. Five continued menstruate scantily, the flow lasting the normal duration of previous menstruation. In four instances menstruation was reduced and remained regular; three cases menstruated irregularly and reported scanty menstruation every two or three months. Subsequent reports as to the symptoms of the menopause were interesting. In women over 40, where preservation of function was not considered, about 60 per cent. reported flushes and the usual phenomena of the climacterium. In many the symptoms were reported as severe, and almost invariably their history showed that the bleeding had been of the aggravated type. The duration of symptoms lasted about the average of the normal menopause, but in two cases the flushes had persisted for six years, and the patients complained that the flushes were as frequent and severe as during the first four months following radiation.

Special Points in the Surgery of the Stomach.—Dr. GEORGE W. CRILE of Cleveland said that duodenal ulcers were more strikingly relieved by operation than were gastric ulcers. In cases of acute perforation from gastric ulcer the patient was operated on at the earliest possible moment, merely a closure by suture being made. Apparently this was sufficient for, as a rule, perforating ulcers were self-cured. The management and treatment of bad risk patients was based on the probabilities rather than on the state of the patient at the moment, and just as in preventive medicine, prophylactic measures were applied in advance of the emergency. In extreme cases it might be that no striking improvement could be secured; but it should be borne in mind that even a slight gain might establish the outcome, and the patient was entitled to even the smallest advantage which no one could say might not mean the difference between life and death. As a prophylactic precaution, therefore, the following routine was rigidly enforced in all bad risk cases: (1) Before operation, water 2000-4000 c.c. by Bartlett's method of hypodermoclysis if anemia was marked, transfusion of blood, repeated if required. (2) During operation. Nitrous oxide oxygen only to the stage of analgesia, with local anesthesia; the briefest and slightest possible exposure; sharp knife dissection, avoidance of traction; wide excision of tumor; round needles for stomach suture; cobbler stitch; lightly tied sutures. (3) Postoperative. Warmth, transfusion of blood, maintenance of nutritional and water balance, promt use of a stomach tube in case of vomiting. Prolonged (a year or more) control of ulcer cases. By the employment of these general measures which were always strictly adapted to the indications in the individual case, the range of operability had been extended; postoperative morbidity had been minimized, and the mortality of operations upon the stomach, including gastroenterostomies for ulcer and resections for cancer, had been reduced to 3.2 per cent.

The Treatment of Cancer of the Tongue.—Dr. CURTIS F. BURNAM of Baltimore stated that in a series of 281 tongue lesions, studied at the Howard A. Kelly Hospital, there were 207 cancerous and 74 noncancerous conditions. Among the 74 noncancerous were decubitus ulcer, syphilitic ulcer, syphilitic nodule, tuberculous nodule, tuberculous ulcer, fibroma, adenoma, and angioma. In one tuberculous lesion there was no evidence of tuberculosis elsewhere. The presence or absence of a history of syphilis or of a positive Wassermann reaction was of subordinate importance and could be misleading. The association of cancer and syphilis was frequent and both conditions when present demanded treatment. Negative general findings, as well as history and blood findings did not exclude syphilis. In two of his cases there were apparently extensive cancers of the tongue, tonsil, and contiguous lymph glands, and nothing in either history or findings to suggest syphilis, and yet both were syphilis. He believed that complete removals of the tongue were unjustifiable in early cases, and usually useless and harmful in advanced cases; that the sum total of removals in extensive neck metastases, where the disease was outside the glands, did much more harm than good. Between the years 1916 and 1920 nearly all his opera-

ble cases were treated by operation and radium employed externally as an adjunct to the treatment. During these years a large number of inoperable cancers were treated by needling, local applications in the mouth, and heavy distance radiation from the surface. In spite of shrinkage of the growth, sometimes disappearance in the tongue, and undoubted amelioration of symptoms, the results were nevertheless disappointing, for there were no cures. It was only fair to say that the technique employed in these cases was not nearly so theoretically good as that which they could employ now. Since 1920, under the stimulation received from the General Memorial Hospital, and particularly from Dr. Douglass Quick, he had taken up again the treatment of early operable cases with radium, and he agreed with his conclusion that radium had a much more definite field in treating the tongue and mouth lesions than had surgical removal. This advance in radium therapy had been made possible by the bare tube technique. It was possible by this method to eradicate, not only small and moderate sized tongue lesions, but also very large ones in a high percentage of cases treated. In the treatment of certain radiosensible sarcomas, notably lymphosarcoma, the employment of radium was more like a specific drug or serum. This was not the case in tongue cancer. Here radium methods were completely analogous to surgical methods, that is, the radium must be used in a way that would bring intense radiation to all tissues affected or likely to be affected by the cancer, but must spare surrounding undiseased normal tissues.

Surgical Treatment of Facial Paralysis.—Dr. C. C. COLEMAN of Richmond, Va., stated that operations upon the facial nerve for paralysis were indicated in those cases in which the disease or injury had produced a permanent and more or less complete interruption of the nerve trunk, or destruction of its nucleus, provided the paralysis in such cases was not associated with other serious brain lesions. Division of the nerve at the point where it branched was rarely favorable to operations upon the nerve itself, unless such operations were done promptly. The cases of facial paralysis in civil life which most often required surgery were those due to injury of the nerve during mastoid operations. Direct suture of a severed facial trunk, or its main branches, if delayed until faradic response of the peripheral segment was lost, was very difficult, or impossible. It was generally accepted that the outcome of severe traumatic paralysis of the facial nerve was uncertain in so far as regeneration of the nerve itself was concerned. Recovery might set in two or rarely three months after injury, and progress to complete restoration of function. The recovery from paralysis through regeneration of the nerve, not only permitted voluntary movement of the previously paralyzed muscles, but restored normal facial expression. These results, in so far as facial expression was concerned, were certainly superior to those obtained by fusion operations. It was advisable to allow a reasonable time for nerve regeneration while avoiding such delay as would expose the facial muscles to permanent degenerative changes. Following the suggestion of Ballance, he had waited six months before operating upon these cases, although it did not seem probable that the delay would be followed by spontaneous recovery in one of the patients. If the paralysis was complete at the end of the third month in traumatic cases and the reaction of degeneration was present, and, what was still more important, if there was a high threshhold to condense stimulation, a permanent lesion of the nerve was extremely probable. The only appropriate operation for the large majority of cases of permanent paralysis of the facial nerve replaced the inaccessible central segment of the paralyzed facial, with the corresponding segment of either the hypoglossal or spinal accessory. The value of this type of nerve fusion could not be questioned, if the operation was well conducted in suitable cases. With many others he had preferred the hypoglossal for the fusion because of its functional similarity. Movement returned after faciohypoglossal anastomosis in about three and a half months, and appeared first at the angle of the mouth in most cases, although in one patient movement was first observed in the orbicularis oculi on the one hundred and thirty-second day. The recovery of movement was preceded by improvement in the tone of the paralyzed muscles, and this had been observed about the seventy-fifth day after operation. Facial expression, imitative or actual, might be acquired after fusion. It was secondary to the recovery of isolated facial movements, and it depended upon persistent efforts at reeducation of the muscle groups. Viewed from the standpoint of relief of deformity and functional disability, the operation was a highly efficient substitute for the muscle action of a normal neuromuscular mechanism.

Notes on Enteroptosis.—Dr. ROBERT T. MORRIS of New York stated that the present day movement toward group diagnosis was gradually disposing of the tendency to treat various phases of enteroptosis separately as diagnostic entities. An immense amount of unsatisfactory surgery was still being done in this direction. However, his object was to help hold up the hands of the men who were insistent upon the study of every case of enteroptosis as a whole. Some of the cases of dilatation of the duodenum dependent upon mechanical pressure of dragging omentum or mesentery were still treated at great length by gastroenterologists without reference to the quick relief which would be obtained by methods giving relief from the mechanical obstacle. Cases of loose kidney with their various complications in these enteroptosis patients were subjected to ineffective surgical operations and this was perhaps particularly a fact with cases of congested appendix due to circulatory disturbance which was secondary to relaxation of the peritoneal supports. Various pexies of abdominal viscera in enteroptosis cases sometimes gave remarkable results for a few months, perhaps because this group of patients seemed to be particularly susceptible to suggestion. Suggestion, added to temporary relief of some one symptomatic phase, allowed these patients to gain in weight and in spirits and in general good health. A year or so later there was in general a relapse with suffering from some other complication of the original enteroptosis or some feature introduced by the surgical procedure. His enteroptosis patients represented stigmata of decline with arrested development of various organs, the endocrine group being pretty regularly defective. We should have more cases of general enteroptosis to treat because our methods of today were frankly to save the weak, giving us more of the weak in our population and these would hand on a defective progeny.

Gastrojejunocolic Fistulas Following Gastroenterostomy.—Dr. CHARLES H. MAYO of Rochester, Minn., stated that the six cases of gastrojejunocolic fistulas reported were observed among 101 gastrojejunal ulcers at the Mayo Clinic. Case histories were given. A definite syndrome accompanied gastrojejunocolic fistulas and their existence could be revealed by the roentgen ray examination in practically all cases. The onset of symptoms might occur from five weeks to nine and one-half years after gastroenterostomy. Usually symptoms developed within six months or a year. The fistula might be intermitently patent and closed. Pain was not of a definite character, but was usually lower than the pain accompanying duodenal ulcer and often a palpable mass was produced by the scar tissue in the area involved. Diarrhea, wasting, and fecal vomiting were prominent symptoms. The cause of the condition was obscure. Failures after gastroenterostomy, according to Moynihan were due to three factors: (1) Absence of a primary lesion. (2) Residual focus. (3) Technical fault. Gastrojejunal ulcer occurred in about 1 to 3 per cent. of gastroenterostomies, while in about 10 per cent. of the former a colonic fistula occurred. Thirty-four cases had been previously reported in the literature. No definite etiologic role could be assigned to trauma or mechanical factors, although it was conceded that the short loop gastroenterostomy gave the best results. The question of nonabsorbable sutures was of some importance, although jejunal ulcers sometimes followed even when absorbable sutures were used. If infection was a factor, a nearby ulcer was not necessary as a focus, but infection might possibly come from a distant lesion, such as teeth, appendix, and so forth. The action of the acid stomach secretion on jejunal mucosa should be considered in the production of these ulcers whose chronic perforation led to colonic fistula. Suturing the rent in the transverse mesocolon to the line of anastomosis was also a positive cause.

Separation of the colon from the stomach with closure of the fistula might be the only treatment necessary. It might be advisable to undo the gastroenterostomy, as patients with fistulas did not tolerate it well and a pyloroplasty could be done after excising the original ulcer. In the 31 cases of fistula reported by Bolton and Trotter the mortality was not high considering the seriousness of the condition; 27 patients were operated on; 21 recovered. There was no operative death in this series.

Ureteral Stricture, an Important Factor in So-called Idiopathic or Essential Hematuria.—Dr. GUY L. HUNNER of Baltimore said an important urological problem long considered as belonging in the border zone between medicine and surgery was that of the so-called essential hematuria, occurring either with pain and colic or as a symptomless bleeding. Since the publication of James Israel's monumental work in 1901, entitled "Surgical Clinic of the Kidney Diseases," and the confirmatory work of Kretschmer in 1907, the profession had accepted Israel's views that in these cases of so-called nephralgie hematurique and essential and angioneurotic kidney bleeding there could be shown organic changes in the kidney. He accepted this view that the hemorrhages in these cases were due to inflammatory changes in the kidney, but that these changes were brought about in most cases by an obstruction to the urinary outflow due to inflammatory disease in the ureter. The local ureteral inflammation and narrowing was usually caused by a distant focal infection, and it was likely that in some cases the bleeding was due to repeated direct injury to the kidney substance by the same focal infection that started the ureteral stricture with its prolonged injury due to back pressure. Omitting many cases with slight hemorrhage or with massive hemorrhage occurring with an acute attack of renal colic, readily proven to be due to stone or stricture, and selecting only those with prolonged macroscopic or repeated massive hemorrhages, such as the profession had been classifying under idiopathic hematuria, he had seen 18 cases in women in the past three years. Three of these were patients before seen and diagnosed as essential hematuria and 15 were his last consecutive cases suffering with this malady. In all of these cases ureteral stricture was demonstrated.. In six cases with bilateral hemorrhage stricture was demonstrated on both sides. The bleeding ceased in many of these cases with no other treatment than the passage of a wax bulb. If the bleeding ceased promptly one could then inject fluids to measure the capacity of the pelvis, take pyelograms and do the other work necessary for a complete urological diagnosis. If the bleeding did not cease after two or three dilatations with the bulb, one should not lose more time, but proceed at once with the measures necessary to a full diagnosis. If these measures demonstrated the presence of a stricture and the absence of evidence of stone, tumor, or tuberculosis, one could then proceed with further dilating until the bleeding ceased. Removal of the original focal infection might be necessary before the bleeding ceased. Persistence of the bleeding and failure to find stricture or to demonstrate a definite cause for the bleeding still called for an exploratory kidney operation. Recognition of the important role that ureteral stricture played in causing essential hematuria would stop the appalling sacrifice of approximately normal kidneys, and would make unnecessary most of the customary operations of nephrotomy, decapsulation, and nephropexy.

Ideal Cholecystotomy, a Valuable Procedure in Certain Cases of Cholelithiasis.—Dr. A. MURAT WILLIS of Richmond, Va., stated that where patients gave a history of attacks of colic, often associated with jaundice and fever, and where the physical examination revealed tenderness or tumor in the region of the gall-bladder, there was little question as to diagnosis. Opening the abdomen disclosed definite structural changes, removing all doubt as to the existence of gall-bladder disease. Here the institution of appropriate surgical treatment seldom failed to afford at least relative relief. Unfortunately, such cases as had been described represented the terminal stages of the pathological process. The patient could be spared much suffering and relief obtained with a greater degree of certainty if the diagnosis were made earlier and proper surgical treatment employed before crippling local lesions and involvement of other organs had occurred. That this attempt was accompanied by danger had been shown by the recent paper of Jacobson and by his own experience. In Jacobson's series of 365 cases, noncalculous cholecystitis was encountered 50 times; of 49 of these patients subjected to cholecystectomy, histological examination of the gall-bladder showed that in 16 instances this organ was normal. In his last 100 operations, he had made the diagnosis of noncalculous cholecystitis in 25 cases, with the result that in 10 instances the gall-bladders were found normal on histological examination. In those series where the incidence of noncalculous cholecystitis was reported as almost 40 per cent., one could not wonder how many normal gall-bladders had been sacrificed. He could not help but feel that there were instances of silent gall-stones. Such calculi might have arisen from a metabolic disturbance, unassociated with infection, or even though infection was primarily responsible for the occurrence of the stones, it was conceivable that it had been overcome and that the stones remained as sterile foreign bodies. There were thus encountered two classes of cases where it seemed unwise to employ either of the usual methods of surgical treatment; that was cholecystostomy for drainage or cholecystectomy. If the former were used in the cases of practically normal gall-bladders, in the absence of infection and pericholecystic adhesions, it would result in rendering the patient worse in many instances. On the other hand, we should hesitate to remove a normal organ. Therefore, he recognized certain definite indications for the old ideal cholecystotomy with the omission of drainage. First, in the cases of doubtful cholecystitis, where the operation was undertaken largely because of a suggestive history and where examination failed to reveal any gross changes in the gall-bladder; second, in those instances where calculi were encountered in the course of some other abdominal operation and where the patient failed to give any history of marked disturbance referable to the gall-bladder, but one must recognize that the calculi were potential sources of danger.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

BOARD OF MEDICAL EXAMINERS OF THE STATE OF NORTH CAROLINA.

Raleigh, June 20, 1921.

ANATOMY.

1. Give origin of a dermoid cyst of the ovary.
2. Name the muscles of the orbital region and give their nerve supply.
3. Describe the circle of Willis.
4. Describe the portal circulation.
5. Name the nerve of expression, give its deep origin and foramen of exit.
6. Describe the thoracic duct.
7. Describe the Gasserian ganglion.
8. Bound Scarpa's triangle and give name and relation of the structures that pass through it.
9. Describe the jugular foramen, and name the structures that pass through it.
10. Name structures and in order that would be cut in an amputation at junction of middle and lower third of the thigh.

MATERIA MEDICA, THERAPEUTICS, AND PHARMACOLOGY.

1. Give the principal alkaloid of belladonna and indications for its use; also dose.
2. What is incompatibility in medicine, and what are the different kinds of incompatibles? Give an example of each.
3. Give a brief description of some conditions in which serum therapy has proved successful.
4. State the effect on the circulation of medicinal dose of nitroglycerine, digitalis, and strychnine.
5. Explain the effect of acetanilid and the cyanosis it sometimes produces; dose.
6. Name three useful emetics. Give dose.
7. Mention four preparations of opium and two alka-

loids; dose of each; its physiological effect; symptoms and treatment of toxic dose.

8. What remedies are useful in cerebral anemia and in cerebral hyperemia? Give doses and methods of administration.

9. Give the symptoms and treatment of strychnine poisoning.

10. Write a prescription for acute conjunctivitis. What is a mydriatic? Name two or more. What is a myotic? Name two or more.

ANSWERS.

ANATOMY.

1. *Theories as to the origin of dermoid cysts of the ovary*:—"Some believe that early in fetal life, certain portions of the fetal layers, especially the epiblast, get included in the developing ovary. While the main part is epiblastic, it is likely that mesoblastic elements are also included, helping to explain the development of bone and muscle.

"Others, *e. g.* Waldeyer, think that the epithelial elements in the ovary may in these cases have some special formative power, producing elements other than epithelium. (As Olshausen points out, if this be the case, the production of such a varied assortment of elements might deserve the name of a "parthenogenetic development.")

"Bland Sutton thinks that 'the epithelium of the ovarian follicle is the source of all the structures found in ovarian dermoids.' He makes a sharp distinction between dermoids and teratomata.

"Olshausen, on the other hand, thinks that the development of teratomata in the ovary is due to fetal inclusion, and that there is no practical genetic distinction between ovarian dermoids and teratomata.

"It is important to note that an old tubal pregnancy which had undergone lithopedion formation, and with which the ovary has been closely blended, has often been wrongly described as either a teratoma or a dermoid.

"Bland Sutton has pointed out that 'in women *dermoids have never been found growing primarily from any abdominal viscus, save the ovary.*'" (Webster's *Diseases of Women.*)

2. *Muscles of the orbital region*:—Levator palpebræ superioris, rectus superior, rectus inferior, rectus internus, inferior oblique, all supplied by the motor oculi nerve; external rectus, supplied by the abducens; and superior oblique, supplied by the patheticus.

3. The *circle of Willis* is an arterial anastomosis situated at the base of the brain. It is formed: In front by the two anterior cerebral arteries (branches of the internal carotid), which are connected by the anterior communicating artery; behind, by the two posterior cerebrals (branches of the basilar artery), which are connected to the internal carotid on each side by the posterior communicating artery.

4. By the *portal circulation* is meant the capillary circulation of venous blood in the liver, between the portal and hepatic veins.

Portal Circulation: "The hepatic artery and the portal vein convey blood to the liver. The artery carries arterial blood, and the vein food-laden venous blood from the walls of the alimentary canal, and from the spleen and pancreas. Both vessels enter the liver at the transverse fissure, and they ramify in its interior, breaking up into small terminal branches which run between the lobules and send fine capillary branches into their substance; from these latter branches the blood passes into the capillary tributaries of the intralobular veins, thence to the sublobular veins, and from the sublobular veins to the hepatic veins, which terminate on the posterior surface of the liver in the inferior vena cava." (Bain's *Medical Practice.*)

5. The *nerve of expression* is the facial; its *deep origin* is from the floor of the fourth ventricle; the *foramen of exit* is the stylomastoid foramen.

6. The *thoracic duct* extends from the second lumbar vertebra, where it commences by a dilatation, the *receptaculum chyli*, to junction of left internal jugular with left subclavian vein. The abdominal part is placed on the front of the body of the second lumbar vertebra, behind and to the right side of the aorta and on the inner side of the right crus; it then enters the thorax through aortic opening, on the right side of aorta, lying between it and the vena azygos major, and passes upward to right of aorta on right intercostal vessels. Opposite the fourth dorsal vertebra it passes to the left behind arch, and runs along the left side of the esophagus, behind the left common carotid artery. At the level of the seventh cervical vertebra it turns outward, and, passing behind left internal jugular and crossing first part of left subclavian artery, arches over the apex of the left pleura to open at the angle of union of the left internal jugular and left subclavian veins. (From *Aids to Anatomy.*)

The *portions of the body drained by it* are: Both lower limbs; abdomen, except upper surface of the liver; left half of thorax; left side of head and neck, and left upper extremity.

7. The *Gasserian Ganglion* "is somewhat crescentic in form. It lies upon the sutural junction between the apex of the petrous bone and the great wing of the sphenoid bone, where it is enclosed within a recess or space, called the *cavum Meckelii*, formed by a separation of the two layers of the dura mater. The concavity of the ganglion is directed postero-medially, and it is upon this aspect that it receives the interlacing fibres of the sensory root of the trigeminal nerve; the convexity of the ganglion is directed anterolaterally and from it emerge the three main divisions of the trigeminal nerve. These are—(1) the first, or ophthalmic division; (2) the second, or maxillary division; and (3) the third, or mandibular division. The medial border of the ganglion is connected with the internal carotid sympathetic plexus by filaments of communication." (Cunningham's *Manual of Practical Anatomy.*)

8. *Scarpa's triangle* is a triangular area or depression situated just below the fold of the groin. It is bounded *above* by Poupart's ligament, *externally* by the Sartorius, and *internally* by the inner margin of the Adductor longus; its *apex* is formed by the junction of the Adductor longus and Sartorius. The *floor* is formed, from without inward, by the Iliacus, Psoas, Pectineus, Adductor brevis, and Adductor longus. *Contents:* The femoral vessels pass from about the center of the base to the apex, the artery being on the outer side of the vein; the artery gives off the superficial and profunda branches, and the vein receives the deep femoral and internal saphenous; the anterior crural nerve lies to the outer side of the femoral artery; the external cutaneous nerve is still further external, lying in the outer corner of the space; just to the outer side of the femoral artery, and in the sheath with it, is the crural branch of the genitocrural nerve. At the apex, the vein (which at the base was internal to the artery) lies behind the artery. The triangle also contains fat and lymphatics.

9. The *jugular foramen* is formed by the temporal bone in front and externally, and the occipital bone behind and internally; it *transmits:* The inferior petrosal sinus, lateral sinus, meningeal branches of occipital and ascending pharyngeal arteries, and the glossopharyngeal, vagus, and spinal accessory nerves.

10. In a cross section of the thigh, at the junction of the middle and lower thirds there are severed: *Muscles*, Vastus internus, Rectus femoris, Crureus, Vastus externus, Biceps, Semitendinosus, Semimembranosus, Gracilis, Sartorius, Adductor magnus: *Nerves*, sciatic, long saphenous; *Arteries*, superficial femoral, anastomotic, deep femoral, perforating; skin, fascia, and the femur. The order in which these are cut in an amputation will depend upon the style or type of amputation.

MATERIA MEDICA, THERAPEUTICS, AND PHARMACOLOGY.

1. The *principal alkaloid of belladonna* is atropine.

Therapeutic indications: For the relief of pain, to dilate the pupil, to check secretions, for diarrhea, for asthma, for shock and collapse, for colic of all kinds, for delirium, for epilepsy, chorea and migraine, for paralysis, for cough, in constipation, in chorea, spermatorrhea, or cystitis.

Dose of atropine, 1/160 of a grain.

2. *Incompatibility* is that relation between medicines

which renders their admixture unsuitable. Incompatibility may be chemical, pharmaceutical, or therapeutic. *Chemical incompatibility* is seen in compounding an acid with a base, and forming a salt. *Pharmaceutical incompatibility* is seen in compounding a resinous tincture with an aqueous solution. *Therapeutic incompatibility* is seen when two agents are administered together which have an opposite action, such as belladonna and physostigma.

3. "*Serum-therapy proper* is the prophylactic and curative treatment of certain infectious diseases by the subcutaneous or intravenous administration of a blood-serum containing an antibody (antitoxic, bactericidal, etc.) which is specific to the particular disease. As generally used, however, the term includes also the treatment of some of these affections by vaccines and by the toxic products (toxins) of attenuated cultures of their respective microbes; but these toxins, though sometimes grown on blood-serum, may be produced on other media, and are never administered in a blood-serum, as the antibodies invariably are."—(Potter's *Materia Medica.*)

Those that have proved most valuable are the diphtheria antitoxin and the antitetanic serum.

Antidiphtheritic serum (against diphtheria); administered subcutaneously; dosage, average about 3,000 units, immunizing dose for a well person about 500 units. *Antitetanic serum* (against tetanus); administered subcutaneously, or into the spinal subarachnoid space; dose, 10 to 20 c.c. repeated if necessary. *Meningococcus serum* (against cerebrospinal meningitis); administered into the spinal canal after lumbar puncture and withdrawal of about 40 c.c. of the spinal fluid; dose about 20 or 25 c.c. *Antirabic serum* (against rabies): administered subcutaneously; for about two weeks several injections are made daily with viruses of gradually increasing strength.

4. EFFECT ON THE CIRCULATION OF A MEDICINAL DOSE: of *nitroglycerine*, is a dilatation of the blood vessels, a lowering of blood pressure; of *digitalis*, is constriction of blood vessels, an increase in blood pressure, and a stronger and slower heart beat; of *strychnine*, is slight, and is due to the effect of the strychnine on the nervous system; the heart beat may be slower and stronger.

5. *Acetanilid* is an antipyretic, and acts by lowering the action of the heat regulating center and lessening heat production; at the same time it increases loss of heat by its action on the skin. It is also an analgesic. It causes cyanosis by its action on the blood—decomposing the red corpuscles, changing the hemoglobin to methemoglobin, and perhaps liberating aniline.

6. THREE EMETICS. *Apomorphine hydrochloride*, dose 1/10 of a grain given hypodermatically; *syrup of ipecac*, dose 4 drams; *antimony and potassium tartrate*, dose ½ to 1 grain.

7. FOUR PREPARATIONS OF OPIUM:—*Extract of opium*, dose ½ grain; *tincture of opium*, dose 8 minims; *camphorated tincture of opium*, dose 1 dram; *tincture of deodorized opium*, dose 8 minims.

TWO ALKALOIDS OF OPIUM:—*Morphine*, dose ⅛ grain; *codeine*, dose ½ grain.

Physiological action:—It is analgesic, hypnotic, diaphoretic, narcotic, a respiratory and cardiac stimulant (later a depressant), it checks most secretions (not perspiration), it stimulates the brain, and contracts the pupil.

Therapeutic uses:—As an anodyne, a hemostatic, in inflammations, as an expectorant, in diarrhea, in alcoholism, manias and diabetes, as an antispasmodic, in insomnia, and as a diaphoretic.

The *symptoms of poisoning by opium* are as follows: "At first there is usually a period of excitation, marked by restlessness, great physical activity, loquacity, and hallucinations. The patient then becomes weary, dull, and drowsy; he yields to the desire for sleep, from which at first he may be roused. The lips are livid, the face pale, the pupils contracted, and the surface bathed in perspiration. The condition of somnolence rapidly passes into narcosis. The patient cannot be roused, and lies motionless and senseless, with completely relaxed muscles. The pulse, at first full and strong, becomes feeble, slow, irregular, and easily compressible; the respiration slow, shallow, stertorous, and accompanied by mucous râles. The patient rapidly becomes comatose, and, in fatal cases, dies in from forty-five minutes to fifty-six hours, usually in from twelve to eighteen hours. In cases of recovery after the stage of narcosis the pulse and respiration gradually return to the normal, and the condition of coma passes into one of deep sleep, lasting twenty-four to thirty-six hours."

Treatment: "Wash out the stomach with a dilute solution of potassium permanganate, leaving about 500 c.c. in the stomach, and maintain the respiration. In the first or second stage the 'ambulatory treatment' should be adopted to prevent, if possible, the establishment of the third stage. If this stage develop the main reliance is to be placed in maintaining the respiration by artificial methods, until the poison has been eliminated. Strong coffee, or caffein, by the mouth or rectum, are of benefit. The same cannot be said of atropine. The urine should be drawn by the catheter."—(Witthaus' *Essentials of Chemistry.*)

8. CEREBRAL ANEMIA. *Treatment.*—"In simple syncope a horizontal position, fresh air, and simple stimulant inhalants such as the familiar smelling salts are usually efficacious. In more severe attacks cold water or the electric brush externally, with coffee, alcohol, or ether internally are indicated. Tight bandaging of the abdomen (preferably) or of the limbs is frequently of value by returning blood to the general circulation. When complicating heart disease or general anemia, the treatment must be directed to these conditions."

CEREBRAL HYPEREMIA. *Treatment.*—"Venous congestion is best combated by rest, removal of any constricting clothing from the neck or abdomen, and moderate purgation."—(*Reference Handbook of the Medical Sciences.*)

9. The *symptoms of poisoning by strychnine* are "a sense of suffocation, thirst, tetanic spasms, usually opisthotonos, sometimes emprosthotonos, occasionally vomiting, contraction of the pupils during the spasms, and death, either by asphyxia during a paroxysm, or by exhaustion during a remission. The symptoms appear in from a few minutes to an hour after taking the poison usually in less than twenty minutes; and death in from five minutes to six hours, usually within two hours."

Treatment.—"The convulsions are to be arrested or mitigated by bringing the patient under the influence of chloral or chloroform as rapidly as possible; the stomach is to be washed out, and the patient is to be kept as quiet as possible."—(Witthaus' *Essentials of Chemistry.*)

10. For *Acute Conjunctivitis:*—

℞:—

Saturated solution of boric acid ℥ij

Sig:—Use to irrigate the conjunctival sac, t.i.d.

A *mydriatic* is an agent which will cause dilatation of the pupil of the eye; *examples*, homatropine, hyoscyamine.

A *miotic* is an agent which causes contraction of the pupil; *examples*, physostigmine, pilocarpine.

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

NOUVEAU TRAITÉ DE MÉDECINE, Vol. VI. By Professors G. H. ROGERS, FERNAND WIDAL, and P. J. TEISSIER. 506 pages, with illustrations. Price, 35 fr. Published by Masson et Cie., Paris.

REPORT OF THE MEDICAL RESEARCH COUNCIL FOR THE YEAR 1920-1921. By the Committee of the Privy Council for Medical Research. 114 pages. Price, 3s. 6d. net. Published by His Majesty's Stationery Office, London.

CONTRIBUCION AL ESTUDIO DE LA ELEFANTIASIS ARABIGA EN VENEZUELA. By Dr. P. D. RODRIGUEZ RIVERO. 38 pages, with illustrations. Published by Tipografia Americana, Caracas, Venezuela.

THE MECHANICS OF THE DIGESTIVE TRACT. By WALTER C. ALVAREZ. 192 pages, with illustrations. Price, $3.50 net. Published by Paul B. Hoeber, New York.

Medical History.

NEW BOOKS AND OLD.

XXIV.—SOME McDOWELL ITEMS.

By JOHN RUHRÄH, M.D.,

BALTIMORE, MD.

EPHRAIM McDOWELL was born, lived, died and was buried many years before it occurred to anyone that he was one of the most remarkable medical men that America has produced. In 1873 John D. Jackson, M. D., of Danville, Ky., wrote a biographical sketch, which appeared in the *Richmond and Louisville Medical Journal* and was reprinted in an "Historical Number" of the *Kentucky Medical Journal*, November, 1917. His material has been utilized by all subsequent writers. In 1890, McDowell's granddaughter, Mary Young Ridenbaugh, afterwards Mary Valentine (which has caused some confusion to McDowell's bibliographers) published a life which has been reprinted several times. It is a crude piece of work by a novice, given to extravagance at times, to vague meanderings at others, and there are errors, but in the main she has given an account of McDowell's life and work and the history of ovariotomy, and subsequent writers, while critizing severely, seem only too glad to use her laboriously collected material, often with scant or no credit.

In 1898 there appeared a short note in the *Practioner*. In 1909 J. Riddle Goffe delivered his Presidential address before the American Gynecological Society and as it was the centennial anniversary of the first of McDowell's operations he chose our worthy for his subject. His address was published in *Surgery, Gynecology and Obstetrics*, in May, 1909. In 1912 August Schachner of Louisville read a paper on McDowell before the Johns Hopkins Historical Club and this was printed in the *Bulletin of the Johns Hopkins Hospital* in May, 1913, and now the same author appears in 1921 with a complete life with an appendix on Jane Todd Crawford. This is a valuable contribution to American medical biography. It seems to be correct as far as it is possible to be correct about McDowell, who wrote next to nothing and was not chronicled by his contemporaries. It has its defects, however, which need not be dwelt upon further than to note that Schachner gives scant credit to Ridenbaugh and he gives in the text long correspondence concerning the failure to secure McDowell's house as a memorial, and his searching out of various facts. All this had better been put in an appendix, for it gives one an impression of too much Schachner where McDowell is the only interest.

Schachner gives a good bibliography, from which the above items were gleaned. The ones noted were the only ones consulted. There are many more, but one can get a very fair estimate from what I have mentioned. Schachner's book also contains a number of good illustrations and various items of historical interest. It is a pity he did not reprint the address of Samuel D. Gross at the dedication of the McDowell monument. This is well worth reading, even if a bit oratorical. It may be found in Ridenbaugh and in the number of the *Kentucky Medical Journal*, mention of which has already been made.

Ephraim McDowell was born Nov. 11, 1771, in Rockbridge County, Virginia. His ancestors were Scotch people who came to this country by the way of Ireland, hence it is often stated that he is of Scotch-Irish descent. His parents removed to Kentucky, where his father became a judge of the First District Court, which was eventually removed to Danville, the first capital of the state. In 1790 it boasted of 150 inhabitants. Not much is known of his early education. He was thirteen years old when he reached Kentucky and just what schooling he had is conjecture. When he was about nineteen he began the study of medicine with Dr. Alexander Humphries, a graduate of the University of Edinburgh, and it was to the same University that McDowell repaired in 1793. He attended the sessions of 1793 and 1794 but did not receive any degree. In 1825 the University of Maryland conferred on him an honorary M.D. In 1795 he returned to Danville and began the practice of medicine and fourteen years later on Dec. 13, 1809, he was called to see Jane Todd Crawford, the wife of Thomas Crawford of Caney Fork, some sixty miles away from Danville. The diagnosis of an ovarian cyst having been made McDowell explained the nature of the disease and the possibility of removing the cyst by operation, which he promised to do if the patient would come to Danville. McDowell described the operation in one of his two short printed articles. Nearly ten years elapsed before he saw fit to print in the *Eclectic Repertory* in 1817 the description of three cases of ovariotomy. His contribution is commendably short and his description of the operation of Mrs. Crawford is as follows:

"Having placed her on a table of the ordinary height, on her back, and removed all her dressing which might in any way impede the operation, I made an incision about three inches from the musculus rectus abdominis, on the left side, continuing the same nine inches in length, parallel with the fibers of the above-named muscle, extending into the cavity of the abdomen, the parietes of which were a good deal confused, which we ascribed to the resting of the tumor on the horn of the saddle during her journey. The tumor then appeared full in view, but was so large that we could not take it away entire. We put a strong ligature around the Fallopian tube near the uterus, and then cut open the tumor, which was the ovarium and fimbrious part of the Fallopian tube very much enlarged. We took out fifteen pounds of a dirty, gelatinous-looking substance, after which we cut through the Fallopian tube and extracted the sack, which weighed seven pounds and one-half. As soon as the external opening was made the intestines rushed out upon the table, and so completely was the abdomen filled by the tumor that they could not be replaced during the operation, which was terminated in about twenty-five minutes. We then turned her upon her left side, so as to permit the blood to escape, after which we closed the external opening with the interrupted suture, leaving out, at the lower end of the incision, the ligature which surrounded the Fallopian tube. Between every two stitches we put a strip of adhesive plaster, which, by keeping the parts in contact, hastened the healing of the incision. We then applied the usual dressings, put her to bed, and prescribed a strict observance of the antiphlogistic regimen. In five days I visited her, and much to my astonishment found her engaged in making up her bed. I gave her particular caution for the future, and in twenty-five days she returned home as she came [*i.e.* on horseback], in good health, which she continues to enjoy."

This contribution eventually started up a very considerable controversy, accounts of which are

given both by Schachner and Ridenbaugh. Two years lated McDowell made another contribution to medical literature in the form of a letter addressed to Dr. James, entitled "Observations on Diseased Ovaria," printed in the same medical journal. There exist records of eight cases of ovariotomy performed by McDowell and there may have been others. Five of these eight cases were complete operations and three were incomplete. There was only one death. This is a very remarkable record, certainly as good or nearly as good as the results obtained at the present time. When one considers the conditions under which McDowell had to operate and the fact that he was performing an operation which had never before been attempted, one gets some idea of the quality of mind of the man, of his courage, of his understanding, and of his technical skill, which must have been very great indeed. McDowell was not the first to operate on an ovarian tumor. Houston in 1701 opened and drained a cyst but he did not make any attempt to remove it and so did not obtain a perfect cure that resulted in McDowell's successful cases. It is said that the removal of healthy ovaries was practiced by the ancients and during the middle ages. Schachner states that Felix Plater of Basle considered the possibility of taking out abnormal ovaries as a curative measure and Schorkopff five years later held the same opinion but of course nothing was done but to mention a possibility.

Anyone interested in the study of this subject will find an account by W. L. Atlee in the Transactions of the American Medical Association, 1851, in which he gives a table of all the known operations of ovariotomy from 1781 to 1851; and a very considerable amount of material is given also by Ridenbaugh and by Schachner.

John D. Jackson in the biographical sketch mentioned above gives the following account which has been much quoted, often indeed without acknowledging the source.

"Dr. McDowell, in person, was nearly six feet in height, of commanding carriage, of a rather florid complexion, with black eyes and dark hair, and deemed in youth a quite handsome man. He was always remarkable for his strength and agility, and while at Edinburgh was pronounced the swiftest foot-racer of the whole university. He was one of the kindest-hearted and most amiable men, overflowing with cheerfulness and good humor, and readily approachable by the world. He seemed to be totally devoid of all reserve and austerity, a tinge of which is generally characteristic of the scholar and professional man, and never appeared to assume that there was any difference between the place of his vocation and that of the humblest unlettered artisan. This seemed instinctively to strike all who came in contact with him, and an easiness amounting almost to familiarity existed between him and his fellow-citizens. So true was this that with the masses, probably because of this very fact, he was not generally appreciated for his true worth. A man in manner arrogating to himself nothing above the populace, as may readily be believed, would not, save by those gifted with something above common penetration be acknowledged to be superior to their sphere. Never, however, was any of this air of familiarity in the slightest degree tinctured with professional demagoguery. His bitterest enemies did not once accuse him of this. By a gentleman of keen perception, yet living, whose father's family physician he was, I am told that never was there a man whose life was freer from the acts of the charlatan, or more entirely devoid of all the petty "tricks of trade," which too frequently disgrace the medical profession. While in the sick room, though he was fond of gossiping about local matters and the events of the day, he habitually refrained from discussing things medical, or any of the affairs of his rivals, with some of whom he was publicly known to be on anything but good terms. While in daily competition with certain members of the profession, whose chief strength was in the application of such arts, they and their artifices were held in supreme contempt by him. From what we can learn, one of the constant endeavors of these gentlemen, who knew that they never could approach McDowell by fair competition, was to try to train the community to believe that there was a sort of essential incompatibility between surgery and medicine, and that because he was infinitely their superior in surgical knowledge and manual dexterity, just by so much was he their inferior in all the intricacies of the practice of medicine, whose arcana were not so appreciably evident to the public as the more demonstrable work of the surgeon. Or, as they were in the habit of putting it, that while he was a bold surgeon, he was but a poor "fever doctor." So far from this being the case, however, he kept himself fully abreast with the progress of medicine by reading all that was new on the subject, and was probably really as far in advance of his competitors in physic as in surgery."

McDowell died when fifty-nine years of age on June 20, 1830, and he was buried in the family burial ground of the Shelby's, one of whose daughters he had married at Travelers' Rest, about five miles from Danville. His wife was interred by his side when she died some ten years later. From this time until 1879 his grave was neglected but through the activity of tthe Kentucky State Medical Society the old Danville Cemetery was bought and made into McDowell Park and the bodies removed and buried near the shaft which is erected as a memorial to Kentucky's greatest surgeon. Schachner devotes a chapter to the McDowell portraits which he reproduces, and he also uses as one of his illustrations Knapp's painting entitled "The First Ovariotomy."

McDowell is such an outstanding figure in the history of American surgery that this new volume is most welcome and the author is to be congratulated on the mass of facts which he has accumulated. The book should be on the shelves of very medical library. At some future date some one will make McDowell the subject of a biographical essay which will at once contain all the essential facts with the charm of diction of an Osler or an Allbutt.

Chaulmoogra Oil and Leprosy.—The United States Public Health Service has issued a statement with the object of preventing optimistic and extravagant claims recently appearing in the newspapers in regard to the curative effects of chaulmoogra oil derivatives on leprosy. The statement asserts that, while the use of the oil and of its derivatives has resulted in a considerable number of apparent cures, it is as yet too soon to tell whether these will be permanent. The ethyl esters of chaulmoogra oil, the use of which has largely supplanted the oil itself, constitute a most valuable agent in the treatment of leprosy. In treating young persons and those in the early stages of the disease, the improvement has been rapid and striking; in older persons and older cases it is less so. Of the cases paroled from the leprosy stations in the Hawaiian Islands so far about 8 per cent have relapsed and returned for treatment. On the whole the results have been very favorable.

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Every doctor knows that arsenic *per se* has very little effect on the course of syphilis, but arsenic in the form of arsphenamine, the synthetic compound, is a powerful antiluetic.

And now there is this synthetic mercurial—Mercurosal—that seems already to have established itself as the therapeutic companion of arsphenamine.

Clinical investigators are agreed that Mercurosal has high spirocheticidal value.

Its toxicity is low—only one-seventh that of bichloride of mercury. This showing is rather remarkable in view of the fact that Mercurosal contains four-sevenths as much mercury as the bichloride.

The blandness of Mercurosal is probably the most striking feature. As one syphilographer expresses it, "* * * this drug does not irritate the veins, however small the veins may be." Repeated injections (27 in one case, in a section of a vein only ½ inch long) have not caused obliteration or other apparent injury to the vessel wall.

It may be administered intravenously or intramuscularly. In either case the quantity of mercury in the patient's body is under the ready control of the physician.

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THE BIOLOGICAL DOSAGE OF *X*-RAY.*

BY FRANCIS CARTER WOOD, M.D.,

NEW YORK.

THE treatment of malignant disease by the roentgen ray is passing through the same phases that were observed in the course of development of radium therapy, in that a period of indifference was followed by enormous enthusiasm and overestimation of the real value of radium, and this in turn was succeeded by a sharp reaction, well voiced by the statements of Dr. John B. Deaver and others implying that radium was of no value in the treatment of cancer, and corroborated by the very important letter appearing in the daily press and signed by two trustees of the Memorial Hospital to the effect that the physicians in charge of the work in that institution were issuing no published statements concerning cures, preferring to suspend judgment until such time as final decision might be reached. Such a conservative attitude on a question still in the experimental stage is of course highly desirable.

Unfortunately, roentgen-ray treatment is now apparently entering the phase of exaggerated enthusiasm. A number of absurd claims as to the great therapeutic value of the rays, especially those from the newly developed types of *x*-ray machines have been made. These new machines, however, yield effective voltages at the most not much more than 40 per cent. higher than those of the old type; and that a machine running at 200,000 or even 250,000 volts could produce miracles, where one running at 150,000 volts did not, would be an interesting phenomenon indeed, especially when we consider that the only advantage of the higher voltage is in the greater output of short wave-lengths from the tube, with a corresponding ability to put a larger dose of *x*-ray in a shorter time into the deeper tissues of the body. The phenomenon would be the more remarkable since radium, which gives off an abundance of rays corresponding to 200,000 to 250,000 volts, is still acknowledged by even its most enthusiastic supporters to be powerless to effect a cure in many types of internal cancer.

Another reason for deprecating the raising of any undue hope concerning the effectiveness of the new *x*-ray apparatus in the permanent cure of cancer is the fact that, as shown experimentally in the Crocker Institute, the rays produced by high voltages are no more potent in killing standard animal tumors than are any other types of *x*-ray, about five erythema doses being required, no matter what the voltage or the filtration. Hence, as the erythema dose is still the limit of the amount of radiation which can be given to internal tumors, the sole gain from the therapeutic point of view is, as stated above, the increased penetration and greater output of useful radiation from the tube.

While, therefore, it may be confidently expected that the employment of voltages up to 300,000 will offer a distinct advance in the effectiveness of our methods of treatment as soon as *x*-ray tubes which will run effectively at a voltage of 250,000 or above are built, it is equally certain that the operation of these machines will require so much technical knowledge and will be fraught with so many perils to the patient (not on account of short circuits, as is commonly assumed by the layman, but because of the large yield of *x*-ray which can be passed through the body) that their use will be limited to institutions or to highly trained specialists. The therapeusis of cancer will by this simple step be placed on a much better basis than it is at present, when so many physicians in the possession of a few milligrams of radium are treating all types of cancer, and those with old-fashioned low voltage transformers are attempting deep therapy, with the sole result that the tumor either is not influenced or is stimulated.

The dosage of radium is comparatively a simple matter to determine, because of the constancy of the energy output of the material. The measurement of the actual biological dose is not so easy, because of the complications produced by the shape of the containers and by the inverse-square law. Nevertheless, a fairly satisfactory body of information has been obtained as to the dosage of this substance. With *x*-ray, on the contrary, we have had to rely mainly upon a single biological unit, that required to produce erythema of the skin. The older methods of estimating this dosage, such as the Sabouraud pastille, the Kienbock strips, and so on, while satisfactory for unfiltered rays and short dosage, have not proved reliable when applied to the evaluation of highly filtered *x*-rays. The mere physical constants of the machine are not sufficient to determine the dose. For example, it has long been assumed by the practitioners of the art of superficial roentgen-ray therapy that the voltage and current through the tube determined the dose, but as a matter of fact, this is far from being generally true, as is concretely illustrated by the fact brought out by Coolidge and Duane, and suggested by Lilienfeld in one of his papers, that the output of the tube at the same voltage and the same milliamperage increases with the number of cycles of the current, and, when a continuous current is em-

*Read at a meeting of the New York Academy of Medicine, January 5, 1922.

ployed, is considerably greater than when the alternating current is used. Thus, the voltage and the current do not determine the yield of the tube. In addition, these differences have also been verified at the Crocker Institute by determining the lethal dose of *x*-rays from a commercial 60 cycle rectifying transformer as compared with those from an experimental continuous current *x*-ray machine. The latter is more effective.

Even the measurement of the output of the tube by the ionization method implies several assumptions, one being that the saturation current varies directly with the quantity of *x*-ray absorbed in the gas of the chamber. This assumption is generally made, but is regarded by some physicists as still open to question. Assuming ionization measurements to be the correct method of determining the total quantity of *x*-ray energy in a given beam emitted by a tube, we are by no means in a position to correlate the figures so gained with what we want to know practically, and that is the death point of malignant tumors. The future of radiotherapy is dependent upon the answer to this question. If it be true that most human tumors require at least five erythema doses for their complete destruction, then the ultimate conquest of internal cancer is still very far off, because the human body can not stand the exhibition of the amount of radiation required to place such a dose in the deeper tissues, especially those of the abdomen. Of course, it is understood that the basal-cell tumors of the face are always excepted, since it has been known for years that most of them will disappear with one or two erythema doses, provided that they have not invaded cartilage or bone, when the effective dose becomes much higher.

What are the facts concerning the susceptibility of human tumors? There has, unfortunately, been only a little accurate information published. Bumm has stated that about four erythema doses are required to kill a tumor, and he is speaking of the type which is often, though not always, especially susceptible, notably carcinomata of the cervix. Seitz and Wintz, on the other hand, have published the statement that carcinoma can be killed by a dose of about 120 per cent of a skin erythema, and that sarcoma requires less. Krönig and Friedrich give a carcinoma dose slightly different; but in a very cautious footnote they call attention to the fact that they by no means assume that this dose will cure a cancer, and that it is only the quantity which will cause a secondary subcutaneous nodule to disappear. Inasmuch as anyone who has run an *x*-ray machine therapeutically knows that secondary nodules of the skin disappear with very different dosages, the absurdity of attempting to set up a standardized dose by this means is evident. My own clinical experience in this regard has been somewhat limited, as I have been interested in the therapeutic phase of *x*-rays for only the last five years, but during that time a very large number of patients have applied for and received treatment at the Crocker Laboratory. Many of those who were inoperable were willing to permit the use of fairly heavy doses in testing the susceptibility of skin metastases. My own impression from these tests is that while a light erythema would cause a disappearance of nodules in a small proportion of cases, in general a larger dose is required, and some tumors are exceedingly resistant. I feel also that the radium resistance of tumors is comparable to that of *x*-ray, and fortunately have had the opportunity for many years to watch the effects of small and large doses of radium on human tumors. The impression gained has been that while in some instances it is easy to cause a shrinkage of highly malignant neoplasms, yet they readily return, showing that the effect was largely on the capillaries and mitotic cells, and that ultimately such tumors recurred from the better nourished peripheral portions where the active blood supply sustained the injured tumor cells during the radiation and prevented their death. Our experiments with animal tumors have confirmed this impression. Of course it is well known that there are some tumors, especially the osteochondro-sarcomata, which resist any dosage, either of *x*-ray or of radium, that can be applied to them. Similar variations in radiosensitivity have been observed in a large series of mouse and rat tumors at the Crocker Institute, some of these tumors being killed by two erythema doses, and some requiring nine, while the average on such a growth as the Flexner rat carcinoma is five.

The standard erythema dose for clinical use has usually been considered that established by Sabouraud on his barium platino-cyanide pastilles. This gives a light erythema of the skin with unfiltered rays, but, as is well known, the skin of different portions of the body varies in its sensibility, and the skin of different persons also varies slightly, so that the Sabouraud erythema is not a fixed quantity. In this country most of those who have been engaged in the therapy of malignant growths have tried not to produce an erythema of the skin during the course of treatment. In Germany, however, the earlier workers, especially the gynecologists, produced serious burns in their effort to introduce large doses into the depths of the pelvis. Such a burn precludes any further administration of *x*-ray for a long time, and may result in prolonged disability to the patient. Warnekros has established as the erythema dose which he considers necessary to enable him to give sufficient radiation to a deep seated tumor one which produces vesiculation but does not cause irreparable damage to the skin. This is perhaps fifty per cent. higher than the dose of Seitz and Wintz, who define an erythema as a reddening appearing at the end of eight to ten days after the treatment.

Thus, we have an equation with three variables: the dose of the tumor to be treated, the amount which the skin will stand plus the capacity of the patient to bear a sufficient dosage. And yet every time a treatment of an internal malignant tumor is undertaken these three factors should be known. In this dilemma it seems to me not impossible that it may be of advantage to use some of the facts obtained by treating highly malignant mouse tumors with *x*-ray or radium. The usual way to determine an erythema dose is to make a series of cautious exposures on complacent patients, until after a period of several months the dose is determined. This implies, however, that every time the machine is readjusted or the apparatus is changed there may be slight differences in the yield of the tube. It is probable that the wave form of the transformer

may be slightly altered by adjustments of the rotating switch and give quite a little difference in the output without this fact being indicated on the milliammeter; such is the common belief of the electrical engineers of the manufacturing corporations. It is extremely time consuming to check the erythema dose continually on patients.

On the other hand, the determination of the lethal dose for a mouse tumor is a fairly simple matter. A few hours' exposure of such a mouse tumor as the Crocker Institute No. 180, the lethal dose for which is about five and a half erythema doses, with subsequent inoculation of a few hundred mice, will give an approximate determination in a few weeks time, and every machine in the United States so calibrated will be comparable to every other machine. We would thus at one stroke all be speaking the same language. It is further possible that, if a general agreement were reached among radiologists, the commercial makers of electrical apparatus might be induced to construct a simple and rugged ionization apparatus which could be then calibrated in biological units, using this mouse tumor as a basis. This would be necessary because the ionization chamber of the ordinary type does not read biologically, but only physically, and the two values do not necessarily coincide. If this standardized procedure could be generally effected the dosage for any treatment could be read instantly, filter and tissue absorption of the patient read off and we would immediately have a basis for attack of the second problem, that is, the accurate determination of the amount of x-ray required to kill a human tumor, considering this either in erythema doses or in standard mouse tumor doses.

For example, I happen to know that with a given machine running at 165,000 volts through a filter of 0.5 mm. zinc plus 1 mm. aluminum, and 5 milliamperes of current, the threshold erythema at 40 cm. distance is 40 minutes. Mouse tumor No. 180 is killed under the specified conditions in about 3 hours and 30 minutes continuous running. At 120,000 volts, with 3 mm. of aluminum as a filter, at 23 cm. distance, 65 minutes are required and the corresponding erythema is 12 minutes. I have applied two erythema doses under both these sets of conditions; that is, a dose considerably larger than the Seitz and Wintz cancer dose, to a number of superficial tumors of various types without curing any one of them. Some of these have been so located that larger doses can be applied, and even three erythema doses have been given to certain tumors without permanently influencing them. This is an illustration of the way in which we may obtain data. Unless such observations are collected in various portions of the country and various types of machines standardized biologically as has been suggested we will not have a body of facts sufficient to warrant our making any assumption as to the ultimate value of radiation in the treatment of tumors. The difficulty has been in the past that no two workers had the same technique; the tumors were rarely examined microscopically; sections for check-up diagnosis between two individual radiologists were rarely available; and the erythema dose of each worker's machine was not accurately known. It is of the greatest importance that the problem be attacked as quickly as possible by a large number of radiologists who are willing to cooperate and collect data with a common basis. Every one of us has patients who are inoperable and incurable by any method of treatment. I have always found such patients willing to help science by undergoing even more than temporary discomfort. By testing the dosage on these patients as soon as microscopical diagnosis is available we can soon have a large amount of information, and possibly get a basis on which the morphology of the tumor would indicate its biology. This has not been possible to decide with animal tumors, except that in general fibrosarcomata are more resistant than the more rapidly growing and vascular types, either epithelial or connective tissue; but in many we have two classes already determined, the lymphosarcomata, and the basal-cell epitheliomata, both of which yield in most instances at least to an erythema dose or even less. It has also been shown by the work at the Memorial Hospital that the embryonic type of teratomata of the testicle is in general radiosensitive. Occasionally, however, marked exceptions are met with, as further experience has shown. Certain types of carcinoma of the body of the uterus and of the cervix have also been shown to belong to the radiosensitive group of tumors, notably by Regaud. This is a small harvest of fact for many years' work.

Unfortunately, it is difficult, if not impossible, to compare the results of the different radiotherapeutic clinics, and it is to be hoped that the committee appointed by the American Surgical Association to study the end results of radiation therapy will be able to report the facts obtained in the next few years in such form and with suitable illustrations, so that not only may the pathologist be informed as to which types of tumor have yielded, but a better standardization of radiation methods may be developed.

Optimism is a poor cure for cancer, and it has not been apparent that the current practice of some radiotherapeutists of criticising the results of cancer surgery has added in any way to the number of cures produced by radiation. The Census Bureau reports that the cancer death rate has risen again this year, and evidently the combined labors of surgeons and radiologists have not made a great impress as yet on the total cancer mortality of the country. The only way to meet the challenge of the disease is, in the first place, by wide publicity as to the importance of early diagnosis and treatment, second, by perfect frankness as regards the relatively small number of patients who come in time for any curative procedure, and, finally, by a close cooperation between the pathologist, the surgeon, and the radiotherapeutist and careful analysis of the ultimate results. At the present moment it is only the quack who is optimistic about the cure of any large proportion of persons suffering from cancer.

1145 Amsterdam Avenue.

Seat of the Pain in Bellyache.—According to Bruning the pain of bellyache cannot be seated in the intestines, which are innervated by the sympathetic, but is localized in the large intermediate ganglia. The umbilical pain in beginning appendicitis is in reality due to contraction of the musculature of the appendix and perhaps of the cecum as well.—Wiener klinische Wochenschrift.

THE CHEMISTRY OF PHOSPHORUS IN BRAIN ACTIVITY.*

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PHOSPHORUS, like iron, sulphur, and manganese, is classed among the inorganic elements. As such it acts within the body and upon the system in the same manner as do all inorganic compounds. All inorganic compounds act by virtue of their irritating and, in this sense, poisonous properties, some being more highly toxic in their action than some of the other elements or their combinations. By virtue of this irritative action they excite sluggish and inactive protoplasmic masses or cells into a higher and more normal biological activity. This is always accomplished without any change in the chemical composition of the inorganic compounds or substance administered.

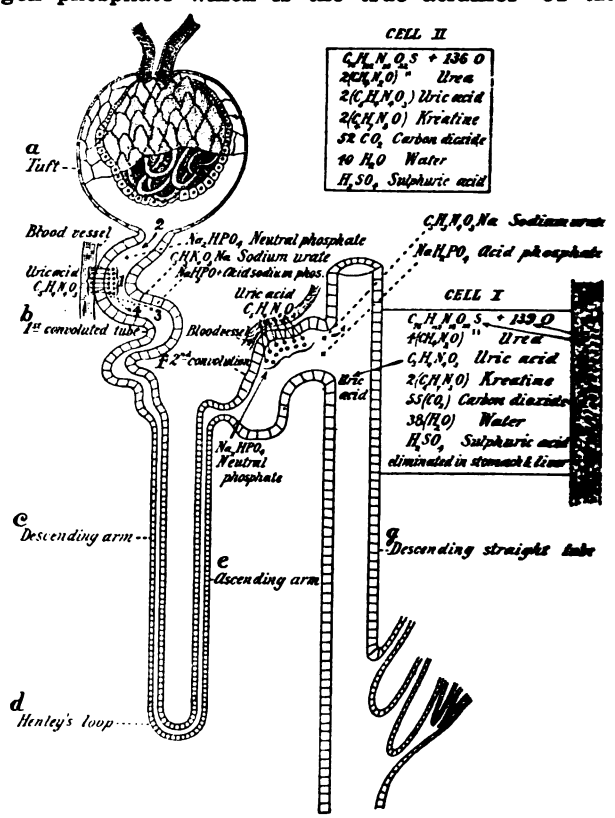
Phosphorus when pure is highly toxic, but when combined with soda or calcium and magnesium it loses almost all of its poisonous properties and becomes one of the essential constituents of the human economy.

Phosphorus in combination with soda serves the physiological economy in three distinct processes:

First, in connection with the digestive functions. At this point the trisodic phosphate is acted upon in the lumen of the intestinal tract, which is outside the body, by the hydrochloric acid and converted into a disodic monohydrogen phosphate. Thus $2(HCl) + 2(Na_3PO_4) = 2(Na_2HPO_4) + 2(NaCl)$. As stated by all physiologists, the disodic monohydrogen phosphate is the true alkalinizer of the body fluids and tissues. As a high state of alkalinity is essential to a perfect oxidation and assimilation, it is necessary to continuously supply the system with this particular phosphate compound; otherwise the socalled acidosis condition will develop from depletion of the alkali reserve. As this particular salt does not exist in the food elements, it must be produced by the chemical mutation in the intestinal tract as already described. In this manner we rid the chyme of the hydrochloric acid that was produced in the stomach in connection with the elimination of the sulphur atom in the protein substances, and by which process sulphate of sodium is continuously produced and supplied to the system in larger amounts than is secured as sulphates ingested with the food. These chemical mutations restore the chloride of sodium lost in the stomach in the manufacture of hydrochloric acid. So that by these two processes the intake and output of sodium chloride is normally always the same, while the output of sodium sulphate is always in excess of the intake.

Second: The disodic monohydrogen phosphate, as already stated, is the true alkalinizer of the fluids and tissues of the animal economy, and by virtue of this high alkalinity keeps body oxidation at the highest possible level, thus making assimilation more nearly or absolutely perfect.

Third: After the disodic monohydrogen phosphate has served its purpose in the fluids and tissues of the body, it is excreted through the malpighian tufts of the kidneys. From this point the disodic monohydrogen phosphate flows down the lumen of the uriniferous tubules until it meets a uric acid molecule, as this acid drops from the renal cell into the lumen of the tube. At this point, which in the true sense is again outside the body, the uric acid attacks the disodic monohydrogen phosphate and transforms it into the acid, monosodic dihydrogen phosphate which is the true acidifier of the urine. Thus $C_5H_4N_4O_3 + Na_2HPO_4 = C_5H_3N_4O_3Na - NaH_2PO$. In this manner the uric acid is changed to a urate, which is a much more soluble substance than uric acid, and also less irritating to the bladder mucous membrane. (See the illustration.)



Schematic drawing showing single uriniferous tubule from Malpighian tuft to papilla or its outlet. (*a*) Malpighian tuft and blood vessels. (*b*) First convolution. (*c*) Descending arm of loop. (*d*) Henley's loop. (*e*) Ascending arm of loop. (*f*) Second convolution. (*g*) Straight or collecting tube. 1. Uric acid molecule dropping into lumen of tube. 2. Neutral phosphate of soda molecule as it unites with the uric acid to form. 3. The acid phosphate of soda; and 4. The urate of soda formed by this chemical mutation. Cell. I. Magnified single renal cell, with lumen of the tube on one side and the blood vessel on the opposite side, illustrating normal oxidation of proteid molecule within the protoplasm of the cell. The proteid and oxygen coming from the blood into the cell, where it breaks up into its reduction products. The uric acid dropping into the lumen of the tube, while the carbon dioxide flows back into the blood. All the other reduction products dropping into the tube as does the uric acid. The sulphur being eliminated as a sulphate. Cell II. Magnified cell illustrating abnormal or suboxidation in the renal cell. Urea diminished one-half, while the uric acid is overproduced fifty per cent. In both the normal and abnormal oxidation the sulphur is found in the urine as a sulphate. The sulphuric acid molecule represented by the formula H_2SO_4 in Cell II. when it reaches the urine, is in the form of a sulphate Na_2SO_4 or "Glauber's" salt. This salt being produced in connection with the oxidation reduction of the protein elements, in some of the gastric epithelia, in the process of producing sulphuric and hydrochloric acid.

The phosphorus is found also in combination with calcium, forming several types of salts, some of which are fairly soluble, while others are absolutely insoluble. This latter class, when enmeshed with the protein substances, gives the solodity to the bony structures of the body.

*Read at the Three Hundred and Ninety-third Regular Meeting of the New York Neurological Society, January 3, 1922.

Phosphorus is also found in the animal economy in combination with magnesium and potassium. The two combinations already mentioned, sodium and calcium, however, are the most important. It must, however, be remembered that the amount of phosphorus entering the system daily in these mineral combinations is exceedingly small; far less than will account for the phosphorus eliminated as phosphates.

The second manner in which phosphorus reaches the fluids and tissues of the body is when it is combined with carbon, hydrogen, nitrogen, and oxygen, to form lecithine, nucleoalbumen, nucleic acid, phytin, etc. Phytin is the phosphorus principle of green plants but contains no nitrogen; its molecule is represented by the formula $C_6H_6P_6O_9$; that of Lecithine is represented by the following formula: $C_{44}H_{90}NPO_9$.

When the phosphorus is combined in these complex molecules it is often (but erroneously) called organic phosphorus. This, however, leads always to a misconception of a fact, for phosphorus itself is always an inorganic element.

This group of complex bodies carrying phosphorus is, however, an exceedingly interesting and important class of substances. The manner or process by which they are produced is pretty well understood; but how they act within the system, and the precise method by which they ultimately are eliminated from the body, have never been satisfactorily elucidated. At the same time there seems to be an abundance of empirical data in support of the therapeutic value of these phosphorus bearing compounds. The purpose of this study of these phosphorus bearing compounds is with the hope that their action can be more clearly defined.

Bunge makes the following statement: "In the plant, phosphoric acid takes part in the formation of very complicated combinations—of the various forms of lecithine and neuclein, which are integral constituents of every vegetable and animal cell. It is chiefly in these combinations, and only to a small extent as salts, that phosphorus enters the animal body, which it leaves in the same form that it enters the plant—as a phosphate." In other words, phosphorus enters plant life as a phosphate to be synthesized into these highly complex bodies containing a large number of carbon and hydrogen atoms. Bunge, as we have already stated, makes the positive statement that phosphorus is eliminated from the body as a phosphate. Therefore, the explanation of the physiological action of these substances must be along the lines of oxidation reduction and the conversion of these complex phosphorus bodies into a phosphate.

My contention for years has been that oxidation reduction takes place in the protoplasmic structure of the fixed cells only as found in the various glands of the body and not in the fluids and tissues of the body; that this process constitutes in a large measure the biologic activity of the body cells, as it occurs, for instance, in the cells of all the secretory and excretory structures of the body. In support of this theory, it is a well known fact that fluids within the body contain minute traces only of any of the catabolic bodies, while on the other hand both the secretions and excretions contain a high percentage of the catabolic substances which are constantly being eliminated from the system. The one exception to this general method of eliminating the catabolins is the catabolin carbon dioxide. This element is taken from the cell where it is produced by the process of oxidation reduction into the blood stream by the carbonate of soda being change to a bicarbonate by the added carbon dioxide and water. As a bicarbonate it flows on to the lungs, where the carbon dioxide and water are discharged into the air sacs and the bicarbonate reverts again to a carbonate of soda, as illustrated by the following equation: $Na_2CO_3 + CO_2 + H_2O = 2(NaHCO_3) — CO_2 — H_2O = Na_2CO_3$.

In connection with these oxidation reduction processes and the exact place where they occur, it should be remembered that the ganglion cells of the nervous system are large masses of protoplasm resembling the cellular structures of the glandular organs, not in shape but in composition; that in all probability they are the place in the animal economy at which these complex phosphorus bearing bodies are oxidized and reduced to their catabolic end products.

To produce energy emanating directly from the central nervous system, there must be some form of oxidation reduction with the production of heat energy, or some other form of energizing impulses generated at this point.

The reasons for this interpretation are the fact that these protoplasmic masses are very abundant in the central nervous system; that these complex phosphorus bearing compounds are found in larger amounts at this point than in any other parts of the animal economy; and also that there seems to be a decided generation of impulses originating in the central nervous system which controls and regulates the automatic balance of the human system—a condition which could not be maintained if the nervous energy was due solely to reflected heat energy brought to the central nervous system by the centripetal nerves and reflected out again by the centrifugal nerves. By this process alone there could be no inherent, intrinsic nerve force emanating directly from the brain and spinal system.

Again, when the central nervous system is actively at work it is always accompanied by an increased elimination of the alkaline phosphates; which tends to support the theory that these phosphorus bearing bodies are oxidatively reduced in the protoplasmic masses which constitute the cells of the central nervous system. Hence, increased elimination of the alkaline phosphates indicates a simple augmented physiological activity of the nervous system, and not a pathological state. On the other hand, over elimination of the earthy phosphates in a highly acid urine always indicates a malnutrition state in which the nervous mechanism is chiefly involved.

We have already indicated by the quotation from Bunge how these complex phosphorus bearing bodies are produced and how they enter the system in the composition of various food elements.

The question pressing hardest for an answer, however, is how and by what method these complex bodies can be converted into energy, and phosphates and how do they pass out of the system?

If we accept the theory that the protoplasmic masses of the central nervous system have the

power to bring about the oxidation reduction of this particular class of bodies, as other cells by a similar process reduce the carbohydrates; fats, and proteins, the explanation is comparatively easy.

At this point it is well to remember that it has been fully established that there is no true synthesis in connection with animal life as occurs in plant life. That is to say, the chemical mutations in animal life cannot take up the free atoms of carbon, nitrogen or nitrates, hydrogen, sulphur and phosphorus and build them up into proteins or these more complex substances. On the other hand, animal chemistry can break down and rearrange the contained units that have been constructed by synthesis in plant life, and rearrange them so that they can be converted into the animal tissues and structures. It also has the power by oxidative elimination to throw out those units that cannot be converted into animal proteins, phosphorus and iron bearing substances that must enter into the anatomical construction of the human body. Finally when these various substances have served their useful purpose in the animal economy, they are further oxidized into the simple catabolins, in which form they escape from the system.

Therefore in the elucidation of the physiological actions and final elimination of these complex phosphorus bearing substances we must hold close to the laws governing plant and animal life. In the latter we are dealing almost exclusively with the law of oxidation reduction and selection of those elements that can be constructed into the body fluids, cells and tissues of all kinds.

Assuming, therefore, that the nerve cells have the power to draw nascent oxygen into their protoplasmic structure and exercise this oxidation selection and reduction of these complex phosphorus bearing bodies and reduce them to much less complex or simple forms, the explanation is now easy, for by this oxidation reduction the lecithine, for instance, is oxidatively reduced to a phosphate of soda, urea, carbon dioxide and water. Thus $2(C_{44}H_{90}NPO_8) + 2(Na_2CO_3) + H_2O + 264\ (O) = 2(Na_2HPO_4) + 90(CO_2) + 90(H_2O) + CH_4N_2O$.

While speaking of phosphorus in connection with some of the other inorganic substances, Brunton says that "Living protoplasm has the power of oxidizing all members of this group, and also of reducing their products of oxidation" (Binz). "It is probable that this action goes on more easily with phosphorus than with nitrogen. Hence, if phosphorus replaces nitrogen in a living cell it will quicken metabolism."

Further than this it is stated that phosphorus increases bone growth and tends to make it more dense. The general augmented metabolism would easily account for this latter fact, for it has been recognized for a long time that bone deficiency is not due to a lack of lime salts or bone producing elements, but due to a disturbance of metabolism which prevents fixation of the calcium salts. In the breaking up of this highly complex phosphorus bearing molecule it is reasonable to suppose that for an instant the phosphorus atom is free, and has this oxidative stimulating action upon the protoplasmic masses, thus generating an inherent central nervous impulse, which not only augments the cell activity *per se* in which this change occurs, but is reflected to all parts of the economy by the nerve fibers springing from the cells. This being true, it is easy to accept the generally good effects which follow the use of this class of compounds physiologically and when used as therapeutic agents. In fact, without these chemical mutations we cannot have a perfect metabolism.

The free phosphorus, after serving its purpose as such, is quickly bound up again into the disodic monohydrogen phosphate. Here again we see how nature is constantly supplying herself with this true alkalinizer of the system, which is another positive reason why these particular compounds augment oxidation and metabolism.

The urea formed by this recombination, being freely soluble and non-irritating, is easily carried by the blood stream to the kidneys for its final elimination from the system.

At this point it is well to note further that it requires the expenditure of a large number of oxygen atoms to completely reduce these lecithine compounds, the same as occurs in reducing the proteins. This in itself presupposes that a high degree of energy must be evolved from these chemical changes. There is also produced a relatively large amount of carbon dioxide at the same time with only a small amount of water.

The carbon dioxide so produced is taken care of in the same manner as that evolved from any of the oxidation reduction processes. As it separates in the cell from its more complex combination and becomes a free molecule, it at once enters into combination with the carbonate of soda always present in the fluids and tissues of the body, causing the carbonate of soda to be changed to a bicarbonate. This latter form of salt is the true and normal carrier of carbon dioxide and water from the seat of formation to the lungs. So far as known to me, the production of disodic monohydrogen phosphate from these highly complex phosphorus bearing compounds is a newly revealed fact, and gives to the physiological economy an inherent source of this absolutely essential alkalinizer of the system. How much is produced daily in this manner is an unsolved problem.

When using phytin or any of these other natural phosphorus bearing compounds as a food or therapeutic agent, they will all produce this special form of phosphate. Hence they will not only enhance brain and spinal power, but will also tend to produce more perfect assimilation.

A noteworthy point is the fact that when using phytin to supply the system with phosphorus, we secure molecule for molecule just twice as much phosphorus as obtains when using lecithine. At the same time phytin yields just as much disodic monohydrogen phosphate and no urea in its final recombination. It requires less oxygen to completely reduce the phytin than has to be furnished when lecithine is being transformed. It requires 2.3970 grams of oxygen to reduce completely one gram of lecithine, while .2689 grams of oxygen will completely reduce one of phytin, as illustrated by the equation already given in connection with the oxidation of lecithine and as here given for phytin: $C_6H_8P_2O_9 + 2(Na_2CO_3 + H_2O + 4\ (O) = 2(Na_2HPO_4) + 4(CO_2) + 4\ H_2O)$.

From these facts and explanations we find that

these highly complex phosphorus bearing bodies act in various ways: as direct protoplasmic irritants by virtue of the phosphorus atom; as a decided source of central nervous system energy by virtue of the fact that all act as oxidizing and reducing agents; that they furnish to the system the most essential alkaline salt; and that by producing an automatic balance to the whole system they largely control metabolism.

From these facts it is reasonable to argue that phytin is more valuable as a direct phosphorus stimulant to metabolism than lecithine. At the same time it is a higher alkalinizer, and in this manner aids more in perfecting assimilation. On the other hand, the fact that lecithine calls for so much larger expenditure of oxygen for its reduction makes it a much greater stimulant to the nerve cells and produces the automatic stabilization of the whole animal economy. Hence lecithine is a more highly physiological product, while phytin may be considered more in the light of a therapeutic agent.

In Professor Lusk's little work entitled, "The Fundamental Basis of Nutrition," he makes the following interesting statements: "Protein has one property out of all proportion to that possessed by the other foodstuffs: it very largely increases the production of heat in the body." Again he writes, "One may cause the heat production of a dog to double by giving a large quantity of meat. This action is due to the fact that many of the chemical units produced in the digestion of meat act to stimulate heat production in the animal. Some of these individual chemical units of which protein is composed have been fed to a dog and have been found to increase the heat production in the same way as does ingested meat. Glycocoll is the simplest of these units . . . . Hence it acts as a chemical stimulus and not in virtue of its energy content." By energy content it must refer to the caloric value. If this be true, how can nutritive metabolism be measured by caloric values?

"This heat increasing property of protein has been called its specific dynamic action (Rubner). This action may be affected by all kinds of proteins—by those of meat, fish, eggs, milk, and such incomplete proteins as gelatin" (Lusk).

The effects here quoted rather go to sustain the truth of the assertion in connection with these complex phosphorus bearing compounds, that they have stimulating and energy producing properties outside of their simple heat producing power; and if more heat is produced than can be accounted for by simple oxidation it must be generated by these active chemical mutations and by increased frictional activity of the minute molecules excited into intensified activity.

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46 WEST EIGHTY-THIRD STREET.

ORAL SURGERY, A DEPARTMENT OF GASTROENTEROLOGY.*

SURGICAL VIEWPOINT.

BY JOHN WILLIAM DRAPER, M.D., F.A.C.S.,

NEW YORK.

THE analysis of a sick human being from the standpoint and for the development of modern medicine, required that the great systems of the body be segregated and each put into the hands of highly specialized groups of medical workers. The requirement was identical with that of an automobile needing repair and reconstruction; dissembling was necessarily the first step. This process has now been carried in medicine to its logical end—the human body lies dismembered, exposing not only its morphology in the dissecting room, but its function and its pathology in the laboratories. It is very natural, therefore, that on every hand is seen a desire for and a natural trend toward reintegration. The patient has been catalogued and classified,—intensive study of minute areas and of highly specialized functions has been accurately finished. Enough has been done to justify a reassembling of parts. The pendulum of progress has passed its peak and the age of specialization is merging into that of synthesization.

Of all the great systems this is most true of the alimentary canal. How crude now seem the arbitrary divisions of the past decade into stomach and rectal specialties. Fortunately to-day the fusion of all the specialties relating to the alimentary

*Read before the American Academy of Applied Dental Science Annual Meeting, at Trenton, N. J., January, 1922.

canal may be looked upon as complete,—the rectal surgeon and the old-fashioned stomach specialist alike are dying out, being supplanted by practitioners who have a broader knowledge of the inseparable relationships of the alimentary canal. These, however widely separated anatomically, are nevertheless so interwoven, particularly through the sympathetic systems that the disorders of one part could never have been satisfactorily healed without a knowledge of the pathology and physiology of the entire system. The alimentary canal is, figuratively speaking, an interlocking directorate.

To the surgical physiologists very largely, we owe our awakening to the fact of the essential unity of all portions of the entire alimentary canal, and while recognizing the great contributions that have come from those whose attention was formerly focused upon a small and supposedly isolated segment, one nevertheless welcomes the newer view of the physiological surgeon that the alimentary canal, because of its anatomical and biological unity, must be treated as a whole.[1] The corrollary from this of course is, that not only must the patient be treated as a whole, but that his place and relationship in the whole of nature must be given due consideration. From this latter viewpoint has sprung the splendid work of classifying human beings, as by Bryant,[2] according to their evolutionary development,—a helpful and far-reaching aid to medicine, and no branch of the profession has been more alert to the importance of uncovering these fundamental truths than your own.

The alternate flux and crystallization of the great stream of knowledge which constitutes modern medicine is an object of the most intense interest. At present we are witnessing the fusion into the great central stream of two highly specialized divisions of medicine, dentistry and psychiatry, which through no fault of their votaries, but because of hereditary and environmental considerations had been set aside and regarded as remote and isolated from general medicine. Your presence in Trenton, a great center of modern psychiatry, is an augury that we stand face to face with a much to be desired breaking down of artificial and misconceived barriers and an interlocking of the great truths now held more or less at random by the learned bodies here represented for the certain ultimate good of mankind.

Consider the alimentary canal. What a lack of unity there has been in man's attempts to fathom and treat its pathology! Washed and drugged at its center by the ardent gastrologist, hammered and hewed at either end by the industrious dentist and optimistic proctologist, each one carrying out his fixed and honest convictions that in his segment alone lay the secret of the patient's disability, and woefully ignorant of the amazing nervous and biochemical synthesis of the entire tube, is it any wonder results have been disproportionate to the effort and that the patients have suffered decadence and often death, not because of the ignorance of their therapeutists, but because of their lack of coordination.

The alimentary canal is the oldest and most primitive portion of organized beings. It had to be, for upon it depended growth and life itself. One has only to lay open a common pitcher plant to find that in this lowly representative of the vegetable kingdom there exists a highly developed mechanism, not only for the trapping of flies and other small animals, but for their digestion and assimilation as well. It stands on a parity with our own and yet, consider the aeons of time which separate us from this primitive plant! It is bewildering to think of the length of time during which the processes of digestion have been perfected as they are to-day, and even more so to consider what countless centuries were required to develop this mechanism.

There is no theme more engrossing than that relating to the origin of new variations, particularly in their relation to the pathology of the great systems of alimentation and of locomotion as they exist to-day. Gerould[3] of Dartmouth, has just reported the spontaneous appearance of a blue caterpillar from normal green ancestors, and which breeds true to the Mendelian law. The blue shade is due to the absence of certain blood pigments; is capable of hereditary transmission, like the blue eye, and has, therefore, come to stay. This is only one of the many classical examples which go to show that new varieties are arising about us to-day and that, therefore, we are actually witnessing the very processes which led to our own evolutionary development.

Shaler[4] of Harvard, pictured the accession of the different systems used in the evolutionary development of animal forms as "experiments." One of the most far-reaching of these, for pathological as well as for intellectual development, was man's change from the horizontal to the upright position. What benefited his brain, damaged his belly. Gravity is a potent cause of gastrointestinal invalidism, the human abdomen never having become wholly adapted to the upright position. So it is clear that one important reason why man is so prone to gastrointestinal disease is unquestionably that these experiments of his remote ancestors, while useful in many respects, have been deleterious in others. Blue caterpillars doubtless have certain advantages over green ones, but there is never an advantage without a compensating drawback. Consider the teeth from this angle and study their remote but important relationship to the entire individual. For this purpose man should be considered as a cask with both heads tight in place and through which a pipe has been snugly thrust. Water can be poured through the cask and yet without entering it. The outer surface of the cask is the skin; the point where the pipe pierces the upper head is the mouth, fringed by the teeth; the inside of the pipe is the alimentary canal,—the inner surface of the body; the exit of the pipe through the opposite head is the rectum. In the passage of fluids through the cask its protection from soiling is accorded by the tightly fitting pipe. The space between the outside of the pipe and the inside of the cask is what is known as the body cavity. All sorts of the most elaborate mechanisms, both structural and biochemical, have been devised to protect this great cavity from bacterial invasion. That the skin is an efficient bacterial barrier is not surprising, but recent researches have proved that the delicate epithelial lining of the entire alimentary canal is in health just as potent as the skin. Blood poisoning may result from an abrasion of the skin. Chronic intestinal invalidism is always accompanied, if not wholly

produced, by a leakage through the alimentary canal of its highly poisonous bacteria or their toxins. As stated by Cotton,[8] at no point in the canal is such leakage more prone to occur than around the teeth.

The writer, whose interest has centered upon surgical research relating to the alimentary canal, chiefly the colon, welcomes this opportunity to thank the progressive members of the dental profession for direct clinical proof that dental pathology is interlocked with gastric disorders and colon pathology, often being the precursor of both. Many chronic intestinal invalids under his and Dr. Satterlee's care for years, have been afforded permanent relief only when the dental and antral pathology has been removed. The homely likening of the human body to a cask affords immediate explanation of the liability of the teeth to cause serious systemic disease. When the evolutionary forces drove the teeth, as so many pegs, through the epithelial barriers, a means of food grinding was provided but a potential and serious break in the defensive bacterial barrier was also created. Nature is always coping with the antagonistic law, that over specialization tends to extinction. It is hard to introduce any innovation which does not carry with it damaging qualities. This is especially true as regards the origin and development of the teeth, and it behooves the profession in recognizing this, to remember that the grinding function is a secondary one, the loss of which can be met by replacement and that no benefit from mastication is comparable to the damage done by the breaking through of the epithelial bacteriotoxic barrier which normally protects the body cavity. It is obvious that dead, loose, and infected teeth of all descriptions and kinds are the most potent cause in the body of this breakdown. Moreover, it is the infection from the teeth which causes nervous, mental, and physical symptoms, not vice versa. Formerly it was thought that systemic disorders caused dental decay—now we know otherwise. Thus from biological, anatomical, and physiological grounds it is apparent that the alimentary canal from teeth to anus is one, and that the health and indeed the life of the individual depends as much upon the prevention of the passage of bacteria and their toxins from its inner or outer surface into the body cavity as upon its other highly important functions.

The chief areas of infection are the teeth, tonsils, and colon. Focal infections in these areas do not present, as a rule, the usual local signs of inflammation; how then are they to be diagnosed? It is helpful and instructive to consider first, the methods of bodily protection. As everyone knows there are but two subjective symptoms; pain and disability. These are essentially protective.[9] Pain limits motion and enforces surgical rest. But it must be remembered that, important as pain is, there are many and often extensive lesions in which it is absent. This is particularly true of the focal infections of the alimentary canal. I have seen the most extensive destruction of the jaw, with serious antral involvement, in patients who gave so little local evidence of infection as to have been diagnosed, because of extreme emaciation and weakness, as having pulmonary tuberculosis. Colons may be the seat of the most extensive disease and yet the pain will have been negligible. This is because of two facts. First; an organ can be almost wholly destroyed without pain until the periphery is attacked. Second; streptococcus and colon bacillus infections rarely cause the typical reactions of inflammation—redness, heat, swelling, and pain, which we have been taught to regard as pointing to infection. As most disability is due to pain, it, likewise is absent. Moreover, some of the worst of these focal infections cause no rise of temperature whatsoever; a decrease in blood pressure, and often an inversion of the normal ratio between polymorphonuclear cells and small lymphocytes. With this confusion in all symptoms it is only natural that focal infections in the past should have been overlooked. If not causing symptoms of the ordinary type how can their presence be detected?

Almost all patients having such focal infections present the symptoms of chronic intestinal invalidism, and it is necessary for dentists to be familiar with these, because from the modern viewpoint his function is not alone to care for the teeth but also to cooperate with the physician in helping the patient. Gastrointestinal toxemia, whether from teeth or bowel, is to be recognized, as Satterlee' said long ago, by certain definite mental and physical signs. This is best illustrated by case histories.

J. B., postman, age thirty-eight. Had been transferred on doctor's orders from indoor to outdoor work. Continued to run downhill and went from doctor to doctor only to be told that he imagined he was sick; that he had tuberculosis; that his liver was in bad order; that his stomach was ulcerated; that it was "all in your head"; that he was "neurasthenic." The man's tongue was like parchment, his bowels constipated and dilated with gas; his digestion impaired; he was filled with nervous apprehensions and baseless fears; he could work only every other day because of physical weakness and depression.

The antrum was opened and an ulcerated mass of tissue, presenting some of the characteristics of a sarcoma without being malignant, was removed. Almost immediately the man recovered and is now well.

E. T., widow, thirty-four, mother of two children; emaciated, sallow, "neurasthenic," unable to work; alternate diarrhea and constipation; vomiting attacks for seven years; had vomited steadily for past four months and had lost thirty pounds. Her physician had reported that medically there was "nothing more to offer her," and she was rapidly becoming a neurotic invalid. He was an extremely competent practitioner whose opinion was proven to be correct. I resected the right colon, which, as stated by a competent pathologist, "presented every form of inflammatory change—chronic proliferative colitis with thrombophlebitis as a base." This damaged gut was leaking bacteria and toxines into the body cavity. The vomiting ceased and she gained sixteen pounds in three weeks. Today, one year after operation, she is in perfect health.

These are typical examples of systemic effect of the toxemia from focal infections in the alimentary canal—the first from the oral, the second from the aboral end, and yet the symptoms were almost identical. In neither case was pain predominant; the complaints were vague but constitutionally severe study. The adult pathology, both physical and men- and to be interpreted, it is true, only by special tal, with which we deal is too often terminal.[9] The most pressing present need is the early recognition of hidden infection, very important seats of which occur in the alimentary canal. Cooperation in all medical branches will speed the day of early diagnosis and prevention.

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ORAL SURGERY, A DEPARTMENT OF GASTROENTEROLOGY.*

MEDICAL VIEWPOINT.

By G. REESE SATTERLEE, M.D.,
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MODERN dentistry, at least up to the last two or three years, if we are to believe the writings and constructive criticisms of leading men in the dental profession, such as Thoma of Harvard, has been responsible for a great deal more systemic medical pathology than any of us would until now have believed possible.

Just a year ago the New York City Board of Health published a bulletin which called attention to the fact that one quarter of the yearly deaths in the United States, might have been postponed from five to ten years by proper care of the teeth. The matter, therefore, is one of great interest to both professions. The ingenious methods devised by dentists which are directed mainly to the preservation of dead or badly damaged teeth, are largely responsible for this state of affairs. The result of their employment has been not only the sealing up of an extremely lethal bacterial infection in the teeth themselves, but also a crowding infection back into the jaw bone and frequently into the maxillary sinus itself. Unfortunately these conditions are not characterized by the usual sensory disturbance. They remain hidden and sealed up for years. Although relatively harmless in themselves, at least so far as the local conditions go, they are generally recognized to-day as being the frequent, if not the chief source, of damaging toxemias which cause many of the well recognized lesions of the great systems of the body.

Occasionally, however, due probably to the accidental introduction of a true pyogenic organism, these infected areas may come to the surface and give rise to the classical signs of abscess. For the bacteria which cause the true focal or cryptic bone lesion of the mouth are non-pyogenic, being usually streptococci. These streptococci, while they may do considerable local damage, do it in no sense to the degree that the pus producing organisms are capable of. The streptococci, by their own autolysis and by the circulation of their toxins, cause remote damage far outweighing that resulting from any alveolar abscess and infinitely more dangerous.

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Thus, it is not abscess formation but bone necrosis which should be primarily considered. A bone abscess is easily distinguished by the *x*-ray, while much of the bone necrosis of the type under consideration gives little evidence under the ray. Thus there are two important points of difference between the ordinary alveolar abscess due to pyogenic infection, and bone necrosis due to streptococcic infection. It is therefore evident, as will be shown in the case histories, that extraction of teeth alone is not sufficient without thorough removal of all the necrotic areas. This accounts for the fact so often noticed that no systemic improvement has followed the simple removal of teeth.

The modern viewpoint is to consider such gross pathological conditions as chronic appendicitis, gallbladder disease, ulceration of the stomach and bowels, infected colons, many kidney infections, and most cardiac disorders as secondary to focal infections. The writer[1] stated five years ago, that the so-called neurasthenic depressions and a great variety of toxic mental states, were all to be looked upon as senile pathology or at least as terminal conditions from long standing focal infection. Many of these conditions of course require major operative intervention—this comprised the surgery of the past decade. Draper[6] has shown that the surgery of the future will be largely preventive.

It is unnecessary to recount the difficulties and failures which often attend this major surgical work. In 1916 I summarized[7] a series of one hundred and thirty-six patients presenting the classical evidence of chronic intestinal invalidism, and found that in no less than thirty-three, or twenty-five per cent, the appendix had been removed either without benefit, or in some cases with actual detriment. Since that time I believe that the ratio has remained the same. This finding is not peculiar as it is the common experience of all gastroenterologists that their patients too often are not better or even are worse after operation. I do not mean to imply that major surgery is not indicated in many cases or that it is not done right, but simply to recite my own experience and to make suggestions based upon it. It has convinced me that the trouble is not with the surgery so much as with the time at which it is done. In most cases of chronic intestinal invalidism we believe that the appendix was at one time seriously involved, and perhaps was even the primary seat of the infection, but that through failure to remove it in childhood, or at the onset of the symptoms, the infection had already damaged the cecum, the right colon, and other organs irreparably. Rosenow has apparently demonstrated experimentally, that infection of the appendix may occur from focal infection elsewhere in the body, and clinical evidence gives more and more support to this theory.

As the experimental work in pathology of the alimentary canal progresses it becomes more certain that infection travels, in some unknown way, from mouth to anus. Obviously, therefore, the entire canal must from now on be treated as a single unit. I have been struck by the frequency with which notable improvement, if not entire arrest of symptoms, has occurred among well defined chronic intestinal invalids after the removal of local foci in the mouth. Could there be stronger evidence of

the importance of such removal? It is very significant of the attitude of the profession that 51 per cent. of this year's Freshman class at Harvard have had tonsillectomy.

More than five years ago the writer presented evidence, based on a large number of cases, that toxemia arising from the alimentary canal was the direct cause of many mental and neurological conditions, then still supposed to be separate clinical entities, but since that time demonstrated, both experimentally and clinically, to be simply symptomatic of focal infections. Final proof of their importance is now at hand in the splendid results obtained by Cotton[4] in his treatment of patients suffering from actual insanity.

From Cotton's extensive and thoroughly scientific studies[4] he concludes not only that these are usually nothing more than terminal manifestations of prolonged toxemia from focal infection, but, what is of at least equal importance, that the mild nervous and mental disturbances, so commonly seen by every practitioner, are often the prodromal symptoms of chronic insanity. I am aware that this viewpoint is at variance with that held by the classical school of psychiatry, but continued observation of chronic gastrointestinal toxemics, all of whom show marked nervous and mental disturbances, has long since convinced me of the close relationship between the terminal mental stages, as described by Cotton, and the prodromal stages observed by myself and other gastroenterologists. Moreover, there is in many cases a mutation or gradual merger from one to the other.

If this is so, what can be done for prevention? It is my own belief that the present confusion among gastroenterologists as to diagnosis and treatment has arisen largely from lack of recognition of the essential unity of the alimentary canal, coupled with a failure to recognize the importance of the removal of local foci of infection in the course of the canal. This interests you as dentists because you deal with one of the principal sites of focal infection in the body.

Before closing I should like to mention an incident that occurred in one of the leading general hospitals of this city.

On reviewing the yearly drug report, it was noted that the average monthly dosage of aspirin, which had been 2,000 grains, suddenly rose during three months only, to 9,000 grains per month. It was found that during these three months, owing to rotation of service, the practice of removing dental infection had been discontinued, the attending physician not being as yet convinced of its value. Surgical therapy for the removal of the cause had given place to drug therapy, affording an interesting and accurate basis for future study of the comparative value of the two methods.

While the recognition of the value of the removal of focal infection is now broadly held, the actual practice of thorough extirpation of these foci is unfortunately not usually carried out. This is not the fault of the individual physician, but of the inadequate system under which he works.

It will never be accomplished until full cooperation of the specialties is assured, preferably through the medium of group medicine.

M. W., female, aet. sixty-four. Usual symptoms of chronic intestinal invalidism past five years. Chief complaint, progressive blindness.

All the teeth were extracted thirty years ago. Not seriously ill until three years ago, when she developed pain in stomach, nausea, and occasional vomiting. Pain persistent after eating, always worse at night. Shortly after gastrointestinal trouble developed, low-grade inflammation of the uveal tract of both eyes appeared with marked increase in the intraocular tension and secondary glaucoma. Tuberculosis of the eye excluded by all known tests at Saranac Lake. Patient placed under care of competent eye specialist in Montreal for two years. Wassermann negative. Urine, faint trace albumin—few casts. Dentists reported no stumps of teeth or roots in the mouth. Vision rapidly failing.

February 21, 1921, left eye gave out, vomited all that day.

Ophthalmic examination: Right, vision 20/200; left, vision absent. Right eye coloboma from iridectomy. Diagnosis iridocyclitis with secondary glaucoma. Belladonna 1 per cent., dionin 10 per cent.

Physical: Chest normal, tenderness and rigidity in right upper quadrant marked. Fractional gastric test: free hydrochloric absent. All tests showed *Staphylococcus albus*. Renal efficiency, 48 per cent. at end of second hour. Nasal examination: deflected septum, small ulcer. Small infected tonsils. Neurological: normal. *X*-ray: third degree colon delay, residual appendix, irregular loop of colon at hepatic flexure, disturbance of motility in cecum. Intestinal tuberculosis had been ruled out at Saranac.

Abdominal Diagnosis: probable disease right side of abdomen. Dental examination: gums flabby throughout; the *x*-ray shows area of necrosis both sides, both antra infected. Operation: necrotic areas curetted, both antra opened.

Progress.—In three weeks the vision in the right eye had improved so that patient could read the fourth line on the optic chart. Intraocular tension subsiding. Abdominal distress and all gastrointestinal manifestations much improved. January reports from this patient show that she has recovered sufficiently to do her own work, is able to read ordinary print, and has gained 30 pounds. Vision left eye, permanently destroyed.

This case demonstrates the close relationship between eye conditions and oral infection. It also points to the essential unity of the alimentary canal from a clinical viewpoint.

L. G. E., female, aet. sixty-four. Under observation since 1916. Persistent dyspepsia, arthritis involving all joints of both hands and wrists. Late in 1915 she could not close her hands, obliged to eat with a spoon. Walked with difficulty; slept little; could not lie on right side because of severe abdominal pain. Constipation increasing, duration fifteen years; purgatives. Condition that of helpless invalidism.

Objective Findings: Stout, hypothyroid, skin dry, hair brittle. Finger flexion reduced to forty degrees. Joint condition subacute, right knee involved and apparent bursitis of right hip. Heart and lungs negative. Abdomen distended with gas, pain and rigidity in upper right quadrant. Right tonsil one plus. Teeth pronounced negative by a dentist of high standing. Pelvis and rectum negative. Fifty per cent. gastric *x*-ray delay at six and one-quarter hours; great irregularity of lesser curvature; large residue twenty-four hours postenema. Blood pressure normal. Polymorphonuclear and small lymphocytes equal. Wassermann negative, both spinal and blood. Urine negative.

Diagnosis: Cholecystitis probable cause for arthritis. Patient given thyroid and pituitary to point of tolerance. Marked improvement in symptoms.

Two years later, mass in right axilla, always enlarged following tonsillitis. Removal of axillary glands and tonsils; identical streptococcus found in each; autogenous vaccine. Marked improvement, patient able to reduce thyroid treatment, which had been constantly necessary.

At close of 1920 developed pain and tenderness in neck and in right upper abdominal quadrant. Polymorphonuclears fifty, small lymphocytes forty-eight.

Gastrointestinal *x*-ray negative. Five diseased teeth removed, thorough curettage of right antrum. Patient able to discontinue all previous treatment, condition better than in twenty years.

This case reflects the gradual development of modern medicine; suggests that the endrocrine system is inhibited by toxins from local colon and streptococcus foci; shows unusual direct lymphatic relationship between the tonsil and the axilla; discloses the effects of chronic bacterial toxemia upon the ratio of polymorphonuclear cells to small lymphocytes, and finally demonstrates the importance of recognition and removal of all local foci of infection.

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9 EAST FORTIETH STREET.

INCIPIENT EPILEPSY: ITS DIAGNOSIS AND TREATMENT.

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EPILEPSY is a progressive disease, beginning frequently with scarcely noticeable symptoms and ending often enough with dementia. Incipient epilepsy is that stage of the disease referred to by Echeverria in his statement, "The paroxysm may well occur without muscular spasms; it does not, however, without a disturbance of the vasomotor elements in its inception, and hence paleness of the face, or loss of consciousness, or vertigo, not unfrequently are the whole symptoms of the epileptic attacks in the early stage of the disease."[1]

Careful history taking has uncovered the fact that in a considerable proportion of the cases of chronic epilepsy investigated in children there was a period, extending from six months to two years, during which the child had fainting spells or sudden weaknesses.

This early stage of epilepsy, which manifests itself by fainting spells, sudden pallors, attacks of dizziness, sudden weaknesses, and periods of irritability, is the condition to which the term incipient epilepsy is applied. The diagnosis of this condition, based upon objective signs, and its treatment are the subject matter of this paper.

Diagnosis.—The field of research wherein to seek for diagnostic features of incipient epilepsy is clearly indicated in the words of Echeverria just quoted: "The paroxysm . . . . does not occur, however, *without a disturbance of the vasomotor elements in its inception.*"

A *résumé* of results attained in this field of vasomotor research, and heretofore reported, is presented. The normal reaction of the skin to light stroking is a brief lasting red streak of vasodilation, followed by a comparatively long lasting white streak of vasoconstriction.[2]

This reaction to stroking the skin is a vasomotor reflex,* best explained by regarding it as involving the action of the sensory nerves together with both branches (the autonomic and the sympathetic) of the vegetative nervous system. The sensory fibers in the skin transmit the stimuli caused by the stroking, inwards to where the stimuli are reflected outwards along the autonomic (vasodilatation, fibers, and along the sympathetic (vasoconstriction) fibers, ending in the musculature of the blood vessels in the skin. The location of the reflex-arc is probably (for reasons presented elsewhere) in the cerebral cortex.[3]

A study of the vasomotor reflex[4] led to findings of clinical interest. It was found, *e. g.*, that when the vasodilatation component of the reflex on the face lasts longer than fourteen seconds, it—the red streak—is a sign of disease.[5] The abnormalities of the vasoconstriction component of the reflex were found to be so closely connected with epilepsy as to serve in the diagnosis of this disease. Research work[6] disclosed that in chronic epilepsy there is a diseased condition of the sympathetic nerve fibers; this diseased condition being shown by various abnormal vasoconstriction reflexes (the vasoconstrictors are sympathetic fibers), by chronic vasoconstriction spots,[3] and by a hypertonia of sympathetic fibers that had relation with the convulsive outbreaks. It may well be that these objective phenomena are but the clinical expression of the pathological sympathetic fibers that Echeverria found in his autopsies on epileptics.[7]

These objective phenomena, a majority of which are found constantly in chronic epileptics, may be tabulated thus: (1) Unbalancement of the vasoconstriction reflexes on opposite sides of the body. Normally these reflexes balance, are equal. The unbalancement may be in the time taken for the reflexes to appear (that is, a difference in the reaction times) or it may be a difference in the color of the reactions. (2) A hypertonia of sympathetic fibers (manifested by the intensity in color of the reflex vasoconstriction, or by the reflex appearing sooner than is normal). (3) A patchy reflex vasoconstriction, or an absence of the reflex (perhaps due to a degeneration of sympathetic fibers, one of the conditions noted by Echeverria, in the postmortems just mentioned). (4) Chronic vasoconstriction spots. These are evidently due to a chronic hypertonia of the particular sympathetic fibers that innervate the musculature of the blood vessels involved in the spots.

The phenomena thus tabulated and characteristic of chronic epilepsy were sought for in cases met with having the symptoms that Echeverria noted as those of the incipient stage of the disease. Not all of them were found in those cases but enough

*The investigation of this vasomotor reflex demonstrated the need of using a measured stimulus to evoke it, since the reaction evoked by a light stroking differs from that evoked by a heavier stroking. To compare reactions, therefore, a measured stimulus must be used, and this necessity led to the devising of a simple instrument, the vasomotor tester, consisting of a suitable spiral spring into one end of which is inserted a flat piece of wood, and which, when correctly applied, evokes the reflex by a pressure approximating two and a half ounces. The use of the vasomotor tester makes available the measurement and comparison of vasomotor reflexes, a condition essential for research and diagnosis based upon it.

of them to determine the positive diagnosis of the condition present. The objective phenomena found in the cases of incipient epilepsy studied were: (1) Hypertonia of sympathetic fibers; (2) unbalancement of vasoconstriction reflexes; and (3) chronic vasoconstriction spots.

Of these objective signs, the most important from a practical point of view, is the sympathetic hypertonia, for it has been found that in incipient epilepsy, this hypertonia can be overcome by drug action; and that with the disappearance of the hypertonia, the aforementioned symptoms of the disease also go.

The hypertonia is manifested, as before remarked, by the intensity in color of the white streak of reflex vasoconstriction, or also by the quickness with which it appears. There is no measure for the intensity of color in the reaction save the experience that comes with observation and practice in making vasomotor tests. The time, however, which it takes for the streak to make its appearance can be measured with the aid of a stopwatch. If this time be less than the normal reaction time, it is evident there is present a hyperactivity, a hypertonia of the sympathetic fibers involved in the reflex.

The diagnosis of incipient epilepsy is made when, in a case presenting the history of fainting spells, attacks of dizziness, sudden pallors, and periodical irritability, there are found present: (1) A sympathetic hypertonia; (2) unbalancement of the vasoconstriction reflexes; and (3) chronic vasoconstriction spots. The histories of three cases so diagnosed follow:

CASE I.—Theresa H., aged fourteen years. Family history negative; mother states that when pregnant with Theresa she suffered "a great fright" occasioned by the loss of a large sum of money. Previous history: measles at two years; bad fall from a "tilt" while playing seesaw, at eight years, the mother stating that the child remained unconscious for three hours after the fall; pneumonia and pleurisy at eleven years. In her twelfth year she had several attacks of dizziness and sudden weakness. The mother states (January 7, 1917) that for the previous three months the girl has had fainting spells; that now they are as many as four in a week; the girl becomes white suddenly and falls unconscious. The mother had consulted a doctor about her daughter's condition and was informed that heart disease was its cause. Her teacher reported that the girl was irritable and frequently in trouble with the monitors. Examination: nothing abnormal detected about the heart; a small patch of gray hair noted over the right parietal region; pallor present; the girl well nourished and developed. Vasoconstruction spots observed on the dorsal surface of the left forearm. Reflex vasoconstriction after stroking the left side of the face appeared in eleven seconds and was diffuse (that is, it extended beyond the stroked surface). Reflex vasoconstriction after stroking the right side of the face appeared in fifteen seconds—an intensely white streak. January 17, 1917, vasoconstriction spots observed in the same location as before. The case was diagnosed as one of incipient epilepsy. Further history of the case, including treatment, is presented in the second part of the paper.

CASE II.—Albert J., aged ten years. Family history: Father, alcoholic, dead; maternal aunt, epileptic. Previous history: bronchitis at six months; whooping cough at two years; measles at seven years. Mother states (October 30, 1917) that Albert first fainted two years before, the occasion being a visit he made to her in a hospital where she lay sick. During the past six months he has had several fainting spells; is conscious of the beginning of the attack, for he seeks assistance to prevent falling. He becomes "deadly white" and topples over. Twice he has had two separate attacks on the same day. Mother states he is becoming worse; she has ceased sending him on errands for fear something might happen to him; he has frequent attacks of dizziness and headache; appetite good, bowels regular. Examination: negative as regards the organs of the chest and abdomen. Vasoconstriction spots observed in the middle dorsal regions of both forearms. Reflex vasoconstriction on the left side of the face appeared in five and a half seconds, and on the right side of the face in fifteen seconds. This testing showed a marked hypertonia of the sympathetic fibers in the left side of the face, manifested by the quickness of the reflex, the normal time for the reflex to appear in the face being twelve seconds. It showed also a marked unbalancement of the reaction times on opposite sides of the face.

December 17, 1917: Vasoconstriction spots observed in the same locations as previously. Reflex vasoconstriction appeared in nine and a half seconds on the left side of the face, and in six and a half seconds on the right. Mother stated that Albert had had two fainting spells the day before. The mother was informed that the boy had epilepsy, the disease being in the incipient stage. This diagnosis was based on the objective signs of sympathetic hypertonia, unbalancement of the vasoconstriction reflexes, and chronic vasoconstriction spots present. Seventeen months later this diagnosis was confirmed by a convulsive seizure, the first that the boy had in his life. Other details are given under Treatment.

CASE III.—John O., aged twelve years. Family history negative. Previous history: pneumonia when a year old; measles, whooping cough, and mumps at eight years. Mother states that the boy is very nervous; easily frightened; has periods of irritability. Has had several fainting spells since his eighth year, almost all of them at the sight of blood. On one occasion, on seeing his father hurt, he became suddenly pale and weak, but did not lose consciousness. Examination: February 4, 1918, heart normal. Reflex vasoconstriction on the left side of the face in eleven seconds, and on the right in nineteen seconds. Vasoconstriction spots observed on the dorsal surface of the left forearm. February 23, 1918, vasoconstriction spots observed in the same locations as previously. Reflex vasoconstriction on the left side of the face in eleven seconds, and on the right in nine and a half seconds. Diagnosis of incipient epilepsy made, there being present a sympathetic hypertonia, unbalancement of the vasoconstriction reflexes, and chronic vasoconstriction spots. The further history of the case is presented under Treatment.

Treatment.—The finding of an over-irritability, a true hypertonia of sympathetic fibers in incipient epilepsy raised the question, could this hypertonia be overcome by drug action and if so with what result? The drug required to overcome a hyperirritability of sympathetic fibers should evidently be a sympathetic paralysant. Ergotoxin is described as such in the literature.[8] A small quantity of ergotoxin phosphate was obtained, a weak solution of it in water was prepared and a few drops of this was injected into the writer's forearm. The vasoconstriction reflexes produced in the neighborhood of the site of the injection came slower than they did before the injection was made. A control injection of plain water was negative. There was this much ground therefore for inferring that ergotoxin phosphate is a sympathetic paralysant in man. About this time the writer came across the notice of a drug reported by a Dr. R. E. Waterhouse as curative in some cases of epilepsy, viz., *Œnanthe crocata.* With it in place of the ergotoxin phosphate, the previous personal experiment was repeated and the vasoconstriction reflexes were slowed in a similar manner; hence the inference that *Œnanthe crocata* is a sympathetic paralysant. The preparation available was a tincture, and the writer, having reason to consider alcohol as an

irritant to sympathetic fibers, inquired of Prof. John Uri Lloyd if an active preparation of the drug could be made free of alcohol. Professor Lloyd kindly supplied a colloidal preparation of œnanthe without alcohol, and it has been used with satisfactory results. The therapeutic dosage of this preparation carefully worked out is as follows: The writer has prescribed as high a dosage as five minims four times a day (after meals and at bedtime) in cases in which a demonstrable sympathetic hypertonia was present in children ten years of age, but he advises a very cautious approach to such dosage. A safe method to start its use is to mix ten drops of colloidal œnanthe with eight ounces of water, and to give one teaspoonful of the mixture after meals and at bedtime. This dosage can be increased by doubling the quantity of the œnanthe each time the bottle is refilled, every twelve days, until the mixture consists approximately of two drams of colloidal œnanthe in eight ounces of water. (The use of distilled water is advised.) If the medicine causes any untoward symptom, as debility, diminish the dose or omit the medicine.

The effect of this drug, *Œnanthe crocata*, in the treatment of incipient epilepsy is illustrated in the further records of the cases above reported.

CASE I.—Theresa H. Treatment begun January 17, 1917. A mixture of ten drops of œnanthe in four ounces of water prescribed; one teaspoonful to be taken after meals and at bedtime. After taking the medicine in this dosage for a month the patient reported that the attacks of dizziness were less frequent and that she had had but three fainting spells during that time. The dosage was then increased by prescribing one dram of the œnanthe in four ounces of water, a teaspoonful of the mixture to be taken after meals and at bedtime. During the month of March there was marked improvement, the dizziness ceasing; she had three attacks of sudden weakness, but did not lose consciousness in them.

April 17, 1917.—For past two weeks no attack of dizziness nor fainting spell. Treatment continued. May 14, 1917.—No dizziness nor fainting since previous record. Advised to continue treatment. August 11, 1917.—No dizziness nor fainting since previous record. Feels well. Bowels now regular, two movements daily (previous to treatment was chronically constipated). Has taken no medicine for the past two weeks. Advised to take medicine regularly.

March 11, 1918.—Has not taken the œnanthe for the past three months; she feels well; no dizzy attack nor fainting spell since previous record. June 20, 1918.—No dizzy attack nor fainting spell since previous record; has taken no medicine during that time. Graduated from the grammar school. November 24, 1918.—Patient suffered the loss of her mother in the influenza epidemic two months since; has had no attack of dizziness nor fainting spell since the previous record.

April 24, 1921.—Theresa reports that she obtained a clerical situation shortly after her graduation in 1918, and holds it at the present time. Last summer she had a fainting attack and another two and a half weeks ago. Prescribed two drams of colloidal œnanthe in eight ounces of water, one teaspoonful of the mixture to be taken after meals and at bedtime.

CASE II.—Albert J. Commenced treatment December 17, 1917. Prescribed one dram of œnanthe in four ounces of water, one teaspoonful to be taken after meals and at bedtime.

January 22, 1918.—Medicine has been taken regularly. Albert has had no fainting attack since beginning the medicine, but has had, twice, curious attacks of pain in the stomach and nausea. Vasomotor testing showed that reflex vasoconstriction appeared in the left side of the face in seventeen seconds and on the right side in seventeen seconds. The reflexes are balanced and not the reflexes of sympathetic hypertonia.

May 27, 1918.—No medicine (œnanthe) taken for the past three weeks. Vasomotor testing showed that reflex vasoconstriction appeared on the left side of the face in eight seconds and on the right side in thirteen seconds; in the middle of the dorsal surface of the left forearm in nine seconds, and in the same location in the right forearm in six seconds. These reflexes show both sympathetic hypertonia and unbalancement.

July 2, 1918.—Mother reports that Albert has had four fainting spells during the past three weeks; that he is pettish, having crying spells if spoken to sharply. Also that he has taken no medicine for two months previous to the first of the fainting spells here reported. She promised to see that Albert would take his medicine regularly in the future. July 22, 1918.—Is taking his medicine regularly; has had no attacks since previous record. August 5, 1918.—Mother reports that Albert had a slight attack in church eleven days previously, but that he did not lose consciousness. Vasomotor testing showed that reflex vasoconstriction appeared on the left side of the face in twelve and a half seconds, and on the right in fifteen seconds; and on the left forearm in six seconds and on the right forearm, same location, in seven seconds. He is not taking the medicine regularly.

September 6, 1918.—The boy has taken no medicine for four days; mother reports that he is irritable and pettish as he is generally when not taking the medicine. Vasomotor testing showed that reflex vasoconstriction appeared on the left side of the face in twenty seconds and on the right in eighteen seconds; on the left forearm in twenty seconds and on the right forearm, same location, in ten seconds, the streak being intensely white.

February 2, 1919.—The mother reports that he is taking the medicine regularly and that he has had no attack since the previous record. She told of an emotional episode involving Albert that had occurred a week before. She heard him screaming in the street. He was being forcibly held by a neighbor who accused him falsely of having stolen a fifty-cent piece from her son. The neighbor wanted the policeman who was at hand to arrest Albert. This fright and commotion had not brought on an attack, though the mother thought his head bent as if he were about to faint.

March 13, 1919.—Vasomotor testing showed that reflex vasoconstriction appeared on the left side of the face in fourteen seconds and on the right in seventeen seconds; on the left forearm in seven and a half seconds (an intensely white streak) and on the right forearm, same location, in six and a half seconds. Unbalancement of the reflexes and sympathetic hypertonia present; Albert is not taking the medicine regularly; he promised to get another supply of it. From his schoolmaster I learned that the mother had complained to him of an exhibition of temper by Albert a few days before, in which he threw his coat through a window, breaking the glass.

May 28, 1919.—Albert's mother reports that he has not taken any medicine for the past two months, and that two days previously she had witnessed the first convulsive seizure that he ever had. It lasted about a minute. His arms became rigid, his hands were clenched, the lips compressed, and when he came out of it he was dazed. Greatly alarmed by this attack, she regretted very much that the administration of the medicine, the beneficial action of which she had witnessed, had not been faithfully followed. May 28, 1919.—Vasomotor testing showed that reflex vasoconstriction appeared on the left side of the face in twelve seconds and on the right in thirteen seconds; on the left forearm in five seconds and on the right forearm, same location, in four seconds. The reflexes on the forearms indicate sympathetic hypertonia. The patient has taken no medicine for the past two months. The dosage he had previously taken was doubled.

June 23, 1919.—Vasomotor testing showed that reflex vasoconstriction appeared on the left side of the face in twenty seconds and on the right in sixteen seconds; on the left forearm in seventeen seconds and on the right forearm, same location, in twenty seconds. The reflexes are not those of sympathetic hypertonia. The boy has been taking the medicine regularly the past four days.

September 12, 1919.—Vasomotor testing showed that

reflex vasoconstriction appeared on the left side of the face in seventeen seconds and on the right in twenty-one seconds; on the left forearm in eleven seconds and on the right forearm, same location, in eleven seconds, the streak being intensely white. These reflexes show unbalancement and sympathetic hypertonia. Albert has taken no medicine for the past seven days.

November 25, 1919.—No attack since convulsive seizure in May. Has continued taking medicine since then, at times irregularly.

January 21, 1921.—Albert tells me that he has had no fainting attacks nor other seizures during the past year and that he feels well.

February 22, 1921.—The patient's mother brought him to my office; she stated that he had had a seizure the week before after receiving two blows on the hand (from a rattan), he being the fifth boy to receive the punishment. Vasomotor testing showed that reflex vasoconstriction appeared on the left side of the face in twenty-five seconds and on the right in twenty seconds, the latter streak being intensely white; on the left forearm in fifteen seconds and on the right forearm, same location, in twelve seconds, the latter streak being intensely white. These tests indicate both unbalancement of the reflexes and sympathetic hypertonia. Prescribed two drams of colloidal œnanthe in eight ounces of water, one teaspoonful of the mixture to be taken after meals and at bedtime.

CASE III.—John O. Began treatment March 4, 1918, with a mixture of twenty drops of œnanthe in eight ounces of water, one teaspoonful after meals and at bedtime. March 11, 1918.—Vasomotor testing showed that reflex vasoconstriction appeared on the left side of the face in fifteen seconds and on the right in eighteen seconds; on the left forearm in nine seconds and on the right forearm, same location, in eleven seconds.

April 11, 1918.—John reports that he feels better, is not so nervous, *e. g.* when his mother sweeps straw matting it does not affect him now, while before he would jump on hearing the unpleasant sound the sweeping made. The dosage was increased to one dram of œnanthe in eight ounces of water, one teaspoonful to be taken after meals and at bedtime. May 6, 1918.—Vasomotor testing showed that reflex vasoconstriction appeared on the left side of the face in fourteen seconds and on the right in fifteen seconds; on the left forearm in seven seconds and on the right forearm, same location, in eight seconds. June 19, 1918.—Vasomotor testing showed that reflex vasoconstriction appeared on the left side of the face in thirteen seconds and on the right in twelve seconds; on the left forearm in twelve seconds and the right forearm, same location, in thirteen seconds. Patient reports that he is not at all nervous. He recently saw a woman bleeding on the street (she had been stabbed) and he hadn't fainted.

September 10, 1918.—Vasomotor testing showed that reflex vasoconstriction appeared on the left side of the face in eleven seconds and on the right in fourteen seconds; on the left forearm in ten seconds and on the right forearm, same location, in ten seconds. John is told to omit the medicine and to report for observation. He has taken the œnanthe faithfully the past seven month. September 16, 1918.—Vasomotor testing showed that reflex vasoconstriction appeared on the left side of the face in twelve seconds and on the right in fourteen seconds; on the left forearm in eight seconds and on the right forearm, same location, in ten seconds. November 27, 1918.—Vasomotor testing showed that reflex vasoconstriction appeared on the left side of the face in twelve seconds and on the right in fourteen seconds; on the left forearm in ten seconds and on the right forearm, same location, in twelve seconds. Three weeks before John had seen a boy fall and cut his hand. The sight of blood did not affect him.

January 15, 1919.—Vasomotor testing showed that reflex vasoconstriction appeared on the left side of the face in twenty seconds and on the right in twenty seconds; on the left forearm in thirteen seconds and on the right forearm, same location, in sixteen seconds. John reports that he feels well all the time and is not at all nervous. About a week before, he saw a boy with his hand cut and bleeding and had no ill reaction.

March 20, 1920.—John reports that during the past year he felt well and had no fainting attack. Vasomotor testing showed that reflex vasoconstriction appeared on the left side of the face in thirteen seconds and on the right in thirteen seconds; on the left forearm in nine seconds and on the right forearm, same location, in eight seconds. These are normal reflexes.

January 21, 1921.—Called on John in school to-day; he reports that he is well and not nervous, and that he has had no weakness nor fainting spell since the previous record and that he does not mind the sight of blood.

The results of treatment in the cases reported may be summarized as follows: Theresa H. responded by an amelioration of the symptoms in the first month, the medicine being administered in small dosage. The dosage was then increased, and at the end of the second month, the dizziness, irritability and fainting attacks ceased; medication was continued fairly regularly for a year. The girl graduated from the grammar school, obtained a clerical situation shortly after, and holds it at present (more than three years later). In April last, examination showed slight sympathetic hypertonia and unbalancement of the vasoconstriction reflexes, and she reported that last summer she had a fainting spell and also one two weeks before the examination.

The second case treated, Albert J., proved a most instructive one, for despite advice to the contrary, his medicine was administered very irregularly, thus giving an opportunity during two years to study the effect of the drug both on the symptoms of the disease and upon the objective phenomena associated with it. In this case the dosage at the start was fairly large, and there was a quick response to the medicament, the symptoms of irritability and fainting attacks ceasing and objective signs disappearing within a month and a half after the commencement of treatment. The administration of the medicine was kept up for four months and then the mother stopped it, deeming the boy cured. A period of two months of non-medication followed, in the middle of which vasomotor testing showed a marked hypertonia of sympathetic fibers and unbalancement of the vasoconstriction reflexes, and at the end of this period, the fainting attacks returned. Then, with the renewal of medication, the symptoms of the disease again disappeared together with the objective signs. Later, the administration of the medicine was neglected for a period of two months and then the boy had a convulsive seizure, the first he had in his life. After this attack medication was persevered in with more or less regularity for eight months. The boy has had no return of the symptoms since, save once when under the stress of fear and pain he had a slight seizure.

The third patient, John O., faithfully took the medicine for seven months. All symptoms of the disease disappeared after the second month, together with the objective signs, and there has been no return of the symptoms to the present, a period of three years.

A careful study of the cases reported in this paper showed that colloidal œnanthe administered per os lessened the hypertonia of sympathetic fibers that was present, and that with the return of the vasoconstriction reflexes to the normal—the symptoms of dizziness, loss of consciousness, sudden pallor, an dirritability ceased. In Case II, in which the ingestion of the drug was very irregular, the vasomotor reflexes were nearer normal and the

symptoms of the disease were in abatement during the time the œnanthe was being administered; and when the medicine was omitted for a time, the vasomotor reflexes were those of epilepsy and the symptoms of the disease—irritability, dizziness and sudden weaknesses—returned. These and other cases since observed showing the coincidence of sympathetic hypertonia with the symptoms noted by Echeverria as the sole expression of the seizures in incipient epilepsy (*i. e.* sudden pallor, dizziness, and loss of consciousness) and the concomitant disappearance of the symptoms and the sympathetic hypertonia by the use of *Œnanthe crocata*, a sympathetic paralysant, justifies the conclusion that the essential cause of epilepsy is a sympathetic hypertonia. With this in mind, the effect of fright in bringing on epilepsy, noted by Gowers, Turner, and others, is readily comprehensible, since Cannon[9] has shown that fright acts by producing a sympathetic hypertonia. In the cases reported above a fright played no part in the production of the sympathetic hypertonia that was present. What then produced this hypertonia? Do the infectious diseases produce this sympathetic hypertonia resulting in epilepsy? Each of the cases reported had at least one of the infectious diseases of childhood. There are observations, notably that of Gowers[10] "on the peculiar effect of the scarlet fever poison upon the nervous system" that indicate the probability of the toxins of the infectious diseases damaging the sympathetic fibers and producing a sympathetic hypertonia. The question presents an aspect of the subject outside the province of the present paper, worthy, however, of special investigation.

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Diabetes Immediately Following Syphilitic Infection.—Villaret and Blum report the case of a man of forty-five who contracted a venereal sore and a few days later gave a positive Wassermann, followed by a secondary outbreak. Almost from the outset he began to complain of thirst, followed by polyuria and polyphagia, and asthenia. The urine showed a large amount of sugar and there was also acetonuria. The first injections of mercury cyanate caused this syndrome to disappear. Attempts to explain this case failed, as nothing could be accused against the nervous system, liver or pancreas.—*Le Bulletin Médical.*

ACHES AND PAINS OF INTERNAL DISEASE.

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WITHOUT going into the subject of pain too elaborately, I wish to present briefly and rather superficially a method that I have found helpful in localizing the problem presented by a patient who complains of aches or pains that do not have an obvious cause. There is the patient who complains of pain or paresthesia in the little and ring fingers who has not injured his ulnar nerve; there is the patient who complains of pain in the great toe who has no evidence of gout; and there is the patient who complains of "sciatica" who has no pathological condition in the sciatic nerve.

My method is this: (1) The patient is asked to trace with his hand very definitely the area where he has pain. (2) The dermatomes (segmental distribution of the spinal cord) involved are noted and it is sufficient in the beginning to note whether the pain is in the cervical, the thoracic, the lumbar, or the sacral segmental distribution (see the illustration). (3) The viscera related to the dermatomes involved (see the accompanying table from Déjerine) are considered in an objective way as to the possible cause; and in making up the indictment against the possible offender (viscus) it is most essential to have the facts in regard to time as well as to place. Here "time" is the relation to some physiological activity, as for instance, in the case of the stomach, before eating, or after eating: in the case of the heart, when at ease, or after exertion; in the case of the pleura, on taking a deep breath, in the case of the rectum, during defecation, etc.

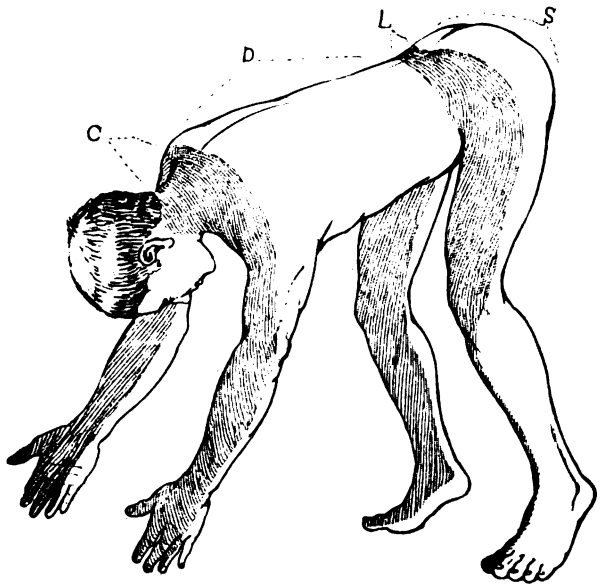
TABLE

(From Déjerine)

Spinal Segments		Viscera connected by way of the sympathetic ganglia and rami communicantes.
III.	Cervical	apex of lung liver
IV	Cervical	stomach aortic orifice
I-III.	Thoracic	heart (ventricles) aortic arch
I-V.	Thoracic	lungs
VI-VII.	Thoracic	heart-auricles
VI-IX.	Thoracic	stomach
VI-X.	Thoracic	liver—gall-bladder
IX-XII.	Thoracic	intestines
X-XII.	Thoracic	prostate
X.	Thoracic I Lumbar	kidneys and urethra, uterus (body)
X.	Thoracic	testicle, ovary, Fallopian tube
XI-XII.	Thoracic I Lumbar	bladder, epididymis and vas deferens, colon
V. Lumbar and III. Sacral		prostate
I-IV.	Sacral	rectum
I-II-IV.	Sacral	bladder
I-II-IV.	Sacral	uterus (cervix)

When an ache or pain or sensation of heat or of numbness and tingling or of cold is not accounted for by some local condition affecting the peripheral nerves, we must think in terms of the neuron rather than of the nerve trunk and seek a possible cause in the viscera related to the locality where the pain or paresthesia is felt. The viscera are not supplied with sensory nerves but the sympathetic ganglia make synapses with the successive segments of the cord *via* the rami communicantes. In the case of a lesion or disturbance in a viscus, the peripheral sensory neurons of the segment of the cord that is connected with the sympathetic ganglion that sup-

plies the involved viscus become irritated, or stimulated, giving rise to the sensation which is referred to the locality supplied by these neurons. For the general practitioner it is not necessary to keep in mind the exact limits of each dermatome (*i.e.* part supplied by each segment of the cord); it is sufficient to bear in mind the general plan of distribution of the dermatomes. This is simple enough if we place the body on all fours like a monkey. In this position, cervical segments supply the cephalad aspect of the upper extremity, while thoracic segments supply the caudad aspect. (We cannot say "anterior" or "posterior" because these terms have a definite technical reference to the classical anatomical position.) Thoracic segments supply all of the thorax and the abdomen. Lumbar segments supply very little in the lumbar region but all the cephalad aspect of the lower extremity.



C. (Shaded) Cervical segmental distribution to the neck and the cephalad aspect of the upper extremity. The artist did not get the hands exactly in the monkey position but the shaded portion is the part supplied by cervical segments. D. (Unshaded) Thoracic segmental distribution to the caudad aspect of the upper extremity, to the thorax and to the abdomen. L. (Shaded) Lumbar segmental distribution to a small area in the lumbar region and to the cephalad aspect of the lower extremity. S. (Unshaded) Sacral segmental distribution to the caudad aspect of the lower extremity including the soles of the feet.

It is not unusual to find patients with cardiac disease complaining of pain in the caudad aspect of the upper extremity extending down into the little and ring fingers. The innervation of this part is derived from the upper thoracic segments of the cord which are in communication with the sympathetic ganglia that supply the heart.

Likewise, it is not unusual to find patients with rectal disease complaining of pain just like "sciatica" in the caudad aspect of the lower extremity. Disturbance in the periphery supplied by the sacral segments, as, for instance, a fallen arch, may cause pain in the whole of the sacral segmental distribution, "just like sciatica."

Pain in the front of the thighs (cephalad aspect) may be caused by a lesion in the kidneys or lower colon.

The monkey position helps us to visualize better the succession of the dermatomes—all we have to keep in mind is that the succession of segments supply a corresponding succession of dermatomes which run down from the cord.

Most of the viscera are related to the nearest segments, the only case where there is an exception to this is because the viscus has migrated from its original location. This refers to the ovary, the testicle, part of the prostate, part of the uterus, and the Fallopian tubes. The Wolffian bodies and the Müllerian ducts evidently derived their innervation when they were located next to the kidneys.

In working with this plan in mind it becomes a pleasure to try and solve the cause of the aches and pains of our patients which otherwise might mean nothing more to us than complaints.

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772 MADISON AVENUE.

Action of Thorium on Certain Chemicals and Its Possible Value in the Morphine Habit.—Berthelot recently brought before the French Academy of Sciences the discovery by Lemay and Jaloustre of the oxidizing action of thorium-X on a number of organic substances tested. Among the latter were solutions of morphine salts. Here the alkaloid was rapidly precipitated in an insoluble form, which proved to be oxymorphine. This find at once suggests that thorium-X be tested in the morphine habit in the expectation that the drug in its toxic form might be changed to the inert oxymorphine. —*Le Bulletin Médical.*

THE PROPHYLACTIC AND CORRECTIVE VALUE OF FOOTGEAR.

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THIS article is submitted with the object in view of giving a concise outline of the mechanical disturbances of the feet and limbs with their causes, diagnostic points, and the correct and incorrect methods of treatment. The main object is to present facts and figures proving the prominent role that footgear plays in the prophylaxis and correction of all mechanical disturbances of the feet and limbs. These disturbances of the feet which in most cases involve the legs are divided into two groups—Weak foot and Spastic foot.

Weak Foot.—Diagnostic Points: 1. Prolapse of the longitudinal or the anterior arch, or both. There is no spasm of muscles present, and there is no limitation of the normal joint motions.

2. General insufficiency of muscle power and distinct absence of tone.

3. Feet pronated with oscalcis rotating inwardly.

4. Painful symptoms in feet, legs, back, knees, or abdomen; local anemia.

5. Presence of plantar callouses at ball of first metatarsal and along inner side of heel.

Causes: 1. Insufficient use of the muscles because of occupation, convalescence, pregnancy, general debility, etc.

2. Incorrect posture, pronounced toeing-out.

3. Long periods of standing with insufficient rest during these periods.

4. Sudden change from a sedentary to a physically active occupation.

5. Wearing leather or metal arch supports or non-anatomic shoes.

6. Wearing shoes of incorrect size, usually too long and too wide.

7. Presence of a systemic disease.

Spastic Foot.—Diagnostic Points: 1. Spasm of the adductors, abductors, etc., of the foot, and of the anterior and posterior muscle groups of the leg.

2. Partial or complete limitation of the motions of the feet.

3. Upturned or clawed toes denoting prolapse of the anterior arch with spasm of the dorsal muscles of the foot, limiting downward flexion of the toes. Presence of corns on the dorsal aspect of the toes.

4. Spastic foot is the sequel of an improperly corrected weak foot.

Corrective Measures.—There are three essentials in correcting these conditions. These are manipulation, exercise, and corrective shoes. The application of these three measures must be co-ordinated with painstaking care if permanent correction is to be achieved.

Manipulation.—In *weak foot* we manipulate to increase muscle power and tone. This is accomplished by the use of resistive movements. If the longitudinal arch is prolapsed, the internal cuneiform, scaphoid, and astragalus can be forced upward as follows: In the case of the subject's right foot, take the thumb of the right hand, having the metacarpal head resting against the patient's scaphoid with the rest of the thumb pressing on the plantar surface, and the remaining four fingers pressing against the dorsal surface. Have the tip of the thumb of the left hand pressing against the patient's internal cuneiform, with the thumb base on the plantar surface pressing the fifth metatarsal, the remaining four fingers pressing against the cuboid and the dorsal surface. Pressure from the right hand should be resisted by that from the left. The left hand adducts the foot while the right hand inverts it, raising the arch. As much pressure as possible should be exerted to keep the foot in this over-corrected position for about a minute, then a felt pad and adhesive plaster should be applied.

In *spastic foot* we manipulate to break the spasm of the soft structures. The foot motions usually affected are adduction, inversion, and downward flexion of the toes. The feet should be manipulated until these motions can be executed painlessly by the subject.

Exercise.—Depending upon the severity of the condition, the subject should exercise daily from fifteen to forty-five minutes with or without shoes on as follows:

1. Stand with the feet parallel and raise the inner borders so that the body weight is carried on the outer borders.

2. Do the same exercise, only walk ten steps forward and ten steps backward on the outer borders of the feet.

3. Subject sitting: Cross the left foot on the right. With the right hand grasp the toes of the left foot firmly, and force them downward as far as possible. Reverse the procedure for the right foot.

The above exercises will assist materially in correcting weak and spastic foot, even if complicated with anterior arch prolapse and dorsal spasm.

Corrective Shoes.—The shoe to be worn by the subject should be selected with great care. The shoe is responsible for seventy-five per cent. of correction achieved. The requirements are as follows:

1. Correct size and last.

2. Make sufficient allowance in length and width to allow for changes in the contour and shape of the foot. A misaligned foot is usually swollen, and when this is reduced the foot is smaller. The object should not be to furnish a shoe to fit the misaligned foot but rather to make the foot fit the correct shoe.

3. Construction should include a long vamp, broad box, short waist, rigid shank, long leather counter, high-lace tight fitting upper, extension rubber heel.

4. Special internal and external corrections of cork and rubber must be made to care for mechanical defects.

Cork and Rubber Corrections.—Longitudinal Arch Prolapse: In either weak or spastic foot, if the longitudinal arch is prolapsed, a cork insole should be attached within the shoe made as follows: The cork insole is cut into the exact shape of the interior sole of the shoe extending from the heel to behind the metatarsal heads. See Fig. 1, superior view at B. Internally, at the longitudinal arch, ball of the great toe and inner surface of the os calcis it is 3/8 of an inch thick. It is skived so as to taper to 1/32 of an inch externally. See posterior

view. It is also skived to 1/32 of an inch behind the metatarsal heads. See internal view. A pad of porous rubber ½ inch thick should be cut into the shape as shown in the superior view at A. This pad should be skived externally so as to fit into the

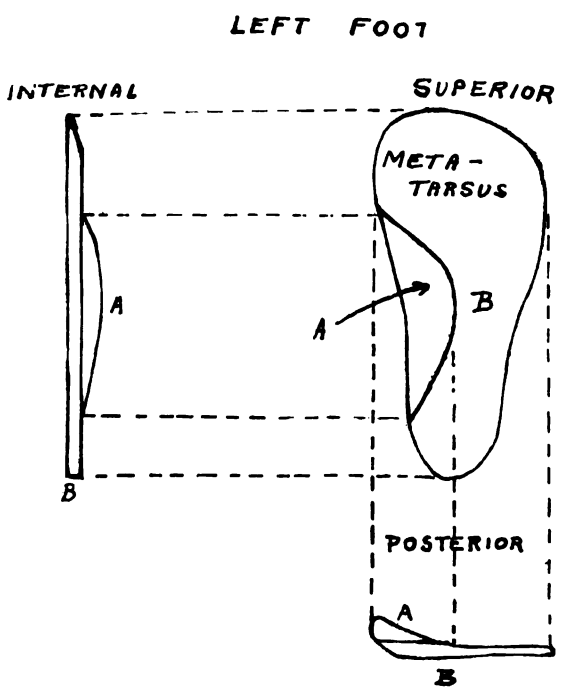

FIG. 1.—Pattern of cork insole and porous rubber pad. A, longitudinal pad of porous rubber; B, insole of cork, ⅜ in. thick internally, 1/32 in. thick externally.

Longitudinal Arch. See internal and posterior views at A. The pad can be either sewn or riveted to the cork insole. If the foot is only pronated, the insole should be used without the longitudinal rubber pad. By reason of the constant pressure of the body weight, this insole will in a few days become moulded to the exact form and shape that the foot requires. No irritation will result.

The foot is not a passive structure of support but an active one. The contour and shape of the foot change a dozen times during each step. A metal or leather arch support, or one made from a plaster-of-paris impression of the foot has but one rigid shape. It cannot change its shape so as to correspond to and accommodate the many changes in shape that the foot makes during the act of locomotion. Hence, severe irritation results

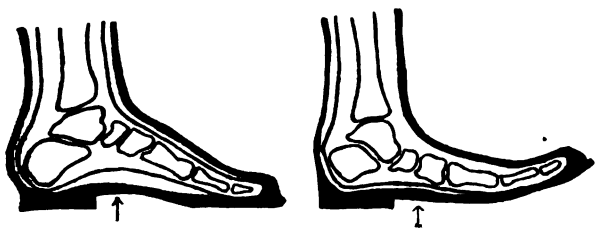

FIG. 2.—A, longitudinal arch normal; B, collapsed shank and longitudinal arch.

at the points of highest elevation and where the momentary downward pressure of the body weight is the greatest. This irritation occurs on most of the internal and plantar surfaces.

Furthermore, rigid supports make a weak foot still weaker, because free play of the plantar muscles is eliminated. Hence, destruction of the plantar-dorsal muscular tension occurs.

Flexible Shank Shoes: Another fallacy in the treatment of mechanical foot ailments is the use of the extensively advertised flexible shank shoes. These shoes are built contrary to the most elementary principles of mechanical support. Taking the human foot-print as a guide, the body weight, roughly speaking, is borne by the os calcis, cuboid with fifth metatarsal, the heads of the five metatarsals, and the five toes. Therefore there are four major weight-carrying areas. Figure 2A, illustrates an anatomically constructed shoe. The arrow indicates the rigid shank where the cuboid and fifth metatarsal receive sufficient support. The rigid shank is really a prolongation of the heel to the ball of the shoe. The body weight is, therefore, distributed normally the same as when the subject walks barefooted.

Figure 2B, illustrates a flexible shank shoe. Note how the shank collapses under the pressure of the cuboid and fifth metatarsal which are literally suspended in midair. The soft structures in this vicinity primarily contract and after a period of time collapse, causing an elongation of the plantar muscles and fascia. The dorsal muscles shorten, causing the toes to claw up which in time results in prolapse of one or more of the metatarsal heads.

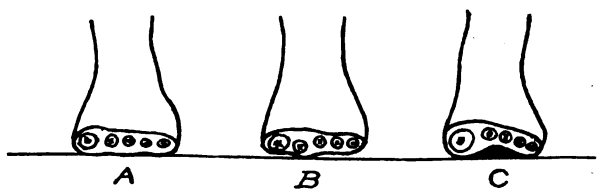

FIG. 3.—A, normal anterior arch; B, prolapse of second metatarsal; C, application of anterior rigid arch support.

In addition, the downward and outward displacement of the cuboid and fifth metatarsal causes disorganization of the scaphoid and cuneiforms which results in pronation and gradual collapse of the longitudinal arch.

Prolapse of the Anterior Arch.—The causes are many and varied, some having been already described. They are: wearing short shoes or short-vamp shoes, wearing flexible-shank shoes, wearing rigid arch-supports, etc.

The anterior arch is not a true arch, as all its parts touch the ground when bearing the body weight. The ligaments and muscles make possible a transverse and outward spreading of the metatarsal heads with their corresponding phalanges which is equivalent to a spring-tension. Figure 3 illustrates a transverse section of the foot at the heads of the metatarsals and shows the incorrect method of treatment. This method is not corrective but only palliative. Any method that destroys the flat and parallel alignment of the metatarsals heads, as illustrated at A, is unscientific.

Furthermore, if, as at C, the second metatarsal is elevated by the support it will still be in abnormal relation with the first, third, fourth, and fifth because they will have become prolapsed in their relation to the second which is now elevated. In addition, the transverse ligaments will become unduly strained, thus eliminating the lateral spring

tension in which all the metatarsals play an equal part.

It has already been demonstrated that if the equal tension of the plantar and dorsal muscles is destroyed, prolapse of the anterior arch results.

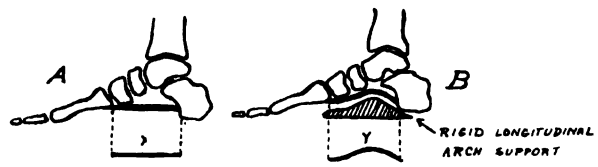

FIG. 4.—Showing the effect of a rigid longitudinal arch support upon the longitudinal ligaments.

In Figure 4, A denotes the plantar ligaments, X, and the straight line in which they lie. B illustrates the change that takes place when a rigid support is placed under the longitudinal arch. Note in Y how the plantar soft structures are forced upward against the bones causing the foot to become elongated. The unequal tension of the plantar and dorsal muscles causes contraction of the dorsal muscles which results in upward displacement of the phalanges and downward displacement of their corresponding metatarsal heads.

Correct Treatment.—A prolapse of one or more of the metatarsal heads, even if complicated with severe spasm of the dorsal muscles, can be corrected as illustrated in Figure 5. A represents prolapsed the metatarsal heads with upturned phalanges accompanied by an upward curling of the vamp of the shoe; and the position of the anterior rubber cleat on the sole of the shoe behind the heads of the metatarsals.

B. When the foot strikes the ground this rubber cleat is the major point of impact which causes an upward pressure to be exerted thus raising the metatarsals heads. (See arrow X). The toes really are suspended over a precipice. When the metatarsal heads are forced upward they in turn force their corresponding phalanges downward. (See arrow Y). Hence at each step this cleat automatically manipulates the metatarso-phalangeal articulations, thus breaking the dorsal muscular spasm.

This anterior cleat is made of hard sole rubber, 3/8 inch thick and one inch wide, attached to the sole of the shoe by clinch nails. Rubber is used to soften the harshness of impact.

Conclusion.—The author during the year of 1920 treated the following cases of members of the New York Police Department: 399 cases of anterior

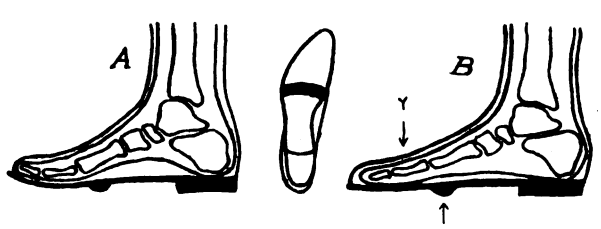

FIG. 5.—Showing the method of treatment of prolapse of one or more of the metatarsal heads.

arch prolapse of which 396 were spastic feet; 331 cases of longitudinal arch prolapse and pronated feet of which 286 were spastic feet.

Even though spastic feet are much more difficult to correct than weak feet, all of the above cases were permanently corrected with the exception of five cases. These did not respond, because of extreme chronicity, true ankylosis, systemic infections, senility, etc. However, corrective shoes as described in the foregoing had to be used in every case.

The author also examined and treated children of the child-caring institutions of the Catholic Charities of the Archdiocese of New York:

Total number children examined	4,487
Pronated feet and long-arch prolapse	297
Number corrected without the use of corrective shoes	16
Number which did not respond until corrective shoes were used	191
Number of cases of anterior arch prolapse	42
Number corrected without the use of corrective shoes	0
Number corrected after corrective shoes were used	42

It can be seen by the foregoing, that the foot should always be considered in its entirety. If a mechanical ailment exists it should be corrected so as not to disturb normal relations and areas. Only by correct diagnosis, persistent manipulation, exercise, and painstaking care in footgear, can permanent correction be achieved.

128 WEST SEVENTY-EIGHTH STREET.

THE PLACE OF THE MODERN MEDICAL LABORATORY IN THE DIAGNOSIS OF DISEASE.

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THE modern medical laboratory is a very complex organization, which deals with diagnosis, treatment and prevention of diseases. Of these three functions the most developed at the present time is the diagnostic one. There is hardly a disease of which the diagnosis or the progress toward the desired or the undesired end can not be determined or controlled by some laboratory procedure, chemical, biological or bacteriological; on the other hand there are many diagnoses which depend solely on laboratory findings.

The general belief is that the laboratory is only the complement to the physical examination. That is, the patient will first have a physical examination, and after that the examining physician will request from the laboratory the tests he thinks necessary. This method of procedure presents several drawbacks. The examining physician may feel so sure of his physical findings that he considers laboratory tests unnecessary; we know how this reliance on our imperfect senses may be misleading. Again, busy principally in some other direction, he may not know the most recent or reliable tests for the special case. Others, in the rush of their work, forget some of those tests. Still others may feel that, to make a diagnosis without laboratory help speaks well for the natural diagnostic ability of the clinician. It is unnecessary for me to point out how many mistakes such practices will lead to.

Furthermore, the conscientious clinician, who knows that he cannot make a proper diagnosis without some laboratory findings, will, after the first physical examination, refer the patient or his specimens to a laboratory. After that perhaps he has to examine the patient again, either because in the lapse of time he has forgotten some physical signs,

or because he has to correct or make more definite some of his impressions. It is very evident that much valuable time is lost in this way, and that sometimes the result of the first physical examination may prove unsatisfactory.

To my mind the medical laboratory in our modern medical era should be something more and better than a mere help; it is the place where the scientific preparation for the correct clinical examination and the right diagnosis is made.

Many of us must have seen some of those engravings, where the physician is represented looking at a flask of urine, and many times those physicians were asked to make a diagnosis by the appearance of the urine alone. These were the first attempts to analyze a specimen, being the most easily obtainable, and at the same time the most useful indicator of internal conditions. These were the first steps in the way leading to a medical laboratory.

Since that time our laboratory methods and our pathological knowledge have gone on improving, and to-day we have already reached methods, which allow us to make with certainty the diagnosis of a good many diseases without the necessity of seeing the patient. But to diagnose a disease is not to diagnose the diseased condition, which shows variations in location, form, and amount with each patient; the clinician is called to recognize these differences and to direct his conduct accordingly. The first step under all circumstances is the diagnosis of the nature of the disease, and in our day this cannot be properly done without laboratory findings.

The laboratory findings are positive knowledge, while the physical examination gives only personal impressions, which, depending on our not always reliable senses, may be erroneous. The proper way to learn something is to start from known facts. The positive knowledge acquired through laboratory examinations are known facts. These can fix our ideas and sometimes give the diagnosis immediately, or when they cannot do that, they are the best guide for our further examination, and the best means for a proper interpretation of our physical impressions. If the patient comes to the examining physician with all the necessary laboratory tests already made, his ailments will be correctly recognized without loss of time. I here recall my medical student days, when one of our professors of clinical medicine always had his pupils go through the laboratory on their way to the wards, saying that "The way to the patient's bed is through the laboratory."

We have in the laboratory findings the thread which will guide us in our way in many clinical labyrinths. Would it not be wiser and more expedient to take this leading thread at the entrance of the labyrinth, and let us be guided by it without wasting a precious time? In other words, the laboratory findings should not be used to prove or disprove the clinical diagnosis, but should be the first step to put the clinician on the right road. In fact, the recourse the clinician has to the laboratory findings to make sure a diagnosis, giving to them the last word, the word of the judge, is an acknowledgment of the great importance of the laboratory for the right diagnosis. But it is not the last word he should give, he should give the first, the leading word. Every modern medical man is conscious of this fact, but the acknowledgment of it is not made in the plain and sincere way it should be, giving the proper place to the laboratory in the diagnosis of the diseases.

I have said that all the necessary tests would be made if the patients would go first to the laboratory. Therefore, it is necessary to have some one there who could establish which are the necessary tests. To my mind, this person should be no other than the pathologist, who necessarily has to have a perfect knowledge of the best methods the laboratory can offer in every special case.

To some it would seem that I am arguing for things which are already done in all the well-organized hospitals, as in them one of the duties of the house physician is to have the preliminary laboratory examinations made before the examining physician sees the patient. That is true, but to my mind it is not done as it should be, the pathologist being more or less looked upon as taking a secondary part in the establishment of the diagnosis. I wish to emphasize the importance which the laboratory has already attained today in the diagnosis of diseases, because there should be in every hospital a proper admitting department which, working independently from the clinicians, should be under the direct control of the pathologist of the institution. Here the patient should be thoroughly, and without loss of time, prepared for the examination by the clinician. The same thing could be done in dispensaries.

But what about patients who cannot be treated in institutions? This subject will be discussed in a subsequent article.

To conclude, it seems to me that the modern medical laboratory has a primary value in the diagnosis of the diseases, and that this fact should be more plainly acknowledged and accepted. If, then, we look at the laboratory in a comprehensive way as a diagnostic, therapeutic, and preventive agency, we see that in medicine today it should hold the first place, and it is going to hold such in the future.

Medical science can not be a mathematical science, as we always have to do with some variable and unknown quantities, but it is self-evident that the laboratory, in trying (and in many instances has already succeeded) to establish unquestionable facts and fixed rules based on these, is making, in every possible way, an exact science of it, independent from our clinical opinions or impressions. To use a mathematical comparison, I like to imagine the practice of medicine as a triangle whose base is made by the pathological science, from one end of which arises clinical skill, from the other therapeutic ability, which join together at the apex, where we find meeting the proper diagnosis and the correct therapy.

Surgery and the Constitution.—As in the old prescientific days surgeons now study the influence of the constitutional type on operative risk. Thus Payr states that in the status hypoplasticus there is an increased tendency to new formation of connective tissue, as shown in one locality by keloidal formation and in another by adhesion formation.—*Wiener klinische Wochenschrift.*

MEDICAL RECORD.

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THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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New York, March 11, 1922.

IS REJUVENATION AFTER PROSTATECTOMY A "STEINACH EFFECT"?

As a sort of by-product of the Steinach doctrine of regeneration is the theory that the improved general health which follows the operation of excision of the prostate may be due to possible section of the vasa deferentia incidental to the intervention. Such a view will be sure of some opposition from other progressive doctrines. Thus the upholder of the existence of "hyperprostatism" will conclude that the benefit following prostatectomy is the result of cutting off the supply of prostatic hormone which, like excess of thyroidin, can set up a morbid syndrome. If there are bacteria in the prostatic secretions the partisan of prostatic focal infection may ascribe the improved health to the cutting off of toxic products which have been poisoning the organism. The question which constitutes the title of this article is asked by Professor A. Blum of Vienna in the *Wiener klinische Wochenschrift* for Jan. 6, 1922, xxxv, 1. He regards the enlarged prostate as a true neoplasm and the socalled capsule is the remains of the atrophied organ. Incidentally the ejaculatory ducts are compressed and immobilized. This interpretation of the finds would at first sight tend to eliminate the possibility of such a condition as hyperprostatism, while in the advanced stages there could hardly be a possibility of latent microbism. But another factor which affects the general health—the removal of back pressure through removal of the urinary obstruction—would have to be awarded more or less credit for the improved general health and in cases in which the kidneys have been structurally compromised, it is conceivable that no marked general benefit could result.

Blum cites the belief in some quarters that removal of the prostate is followed by impotence and mental and physical decay, reasons often given by relatively young prostatics for refusing operation. This teaching once obtained to some extent among medical men. At present everyday experience is teaching us the contrary. In a majority of cases the broken down old man becomes truly rejuvenated. He looks younger, becomes springy and active, and in short has the actions and reactions of a young man. In a majority of cases sexual potency returns.

Authorities have been interested chiefly in the return of sexual potency as an isolated phenomenon. It is conceivable that with this renewal the rest might follow as a psychic reaction. Impotence is followed by intense mental depression, so that return of potence conceivably would have the opposite effect. It was only after the publication of Steinach's work on animals that the possibility of rejuvenescence from dividing the vasa was introduced into the speculations. The vital point then is the fate of these ducts as a result of prostatic hypertrophy and prostatectomy. Do they persist intact or are they damaged, and if the latter to what degree? The subject has been expertly investigated, and the conclusion is that with proper technique the ducts remain quite intact. Another question is much less easily answered. Does the typical prostactic resume sexual relations after operation and is he able to perform coitus physiologically and impregnate women? Blum finds that the sexuality of the individual after operation is commensurate with his years and that any abnormal increase of sexual power is not in evidence.

Blum has made intensive examinations of the prostatic remains, vesicles, and semen in some of his cases and found an approximation of a prostatic body, with vesicles normal and viable spermatozoids. Hence in this type of successful case no theory can be erected which is founded on the destruction of the ejaculatory ducts and interruption of continuity of the vasa deferentia.

Having eliminated this theory, Blum seeks the reason for the picture of rejuvenescence which undoubtedly follows the operation. Removal of back pressure with restoration of renal activity is a powerful factor in any case in which it has developed, and the condition known as urotoxemia which has long depressed the subject's vitality, spontaneously vanishes. In addition the author alludes to the subject, as discussed principally by French urologists, of hyperprostatism. One may go as far as to state that the prostatic adenoma secretes a toxic substance which affects the blood picture, the change in the latter again becoming normal after enucleation (eosinophilia, etc.). But it may be doubted whether this toxic principle is an excess of prostatic hormone, although apparently the normal prostate contains the same principle as the prostatic adenoma. Still another view is possible—that the normal prostatic hormone is necessary to health, that the atrophy due to compression of the neoplasm shuts off this supply, and that after prostatectomy there is a certain amount of recrudescence of prostatic tissue with reappearance of the hormone in the blood. Be this as it may, our next problem is the study of the prostatic hormone in health and disease. Blum does not mention the indirect psychic reaction following return of potency, nor does he allude to the possibility of a microbic factor;

but when severe general symptoms have been attributed to a few colon bacilli in the expressed secretion of the prostate, it would appear that the urologist should at least be certain that in all prostatics the secretions are quite sterile.

THE CLINICAL EVOLUTION OF PULMONARY GANGRENE IN CHILDREN.

THE symptomatic picture of pulmonary gangrene in children is difficult to outline. Primary gangrene and the secondary form due to pneumonia represent the two typical forms of the process. Their onset is sometimes preceded by some indefinite condition for several days or weeks, consisting of malaise, fatigue, anorexia, fever, and persistent cough. Following these prodromes, or even suddenly, chills occur, the temperature goes up, and the child complains of a pain in the side, extremely violent in character, a hard distressing cough, and quite severe dyspnea. The physical signs are slight and about all that can be found is a slight dullness of limited extent coinciding with a diminution of the vesicular murmur. Therefore, the onset of pulmonary gangrene is striking from the disproportion existing between the general symptoms and the small extent of the pulmonary physical signs. The child becomes extremely prostrated and distressed. The color is earthy, yellowish, or livid. The skin is dry, the temperature often 104° to 106° F. of the remittent type of hectic fever; the pulse is small, irregular, and soft; the tongue is dry, thirst is extreme, and there are complete anorexia, vomiting, and diarrhea. Sometimes the cough may be absent, but usually it is troublesome and prevents sleep. The dyspnea becomes more marked, especially should the lesions extend or if bronchopneumonia or pyopneumothorax develops. Fetid breath is wanting in 66 per cent. of the cases. In children under the age of five years expectoration is usually absent, but in older children a true vomicus may occur and that several times a day. Hemoptysis is met with in 25 per cent. of the cases and consists at first of pure blood without odor, then of black and horribly fetid blood, and this may be so profuse that death has been known to ensue. The physical signs are usually those of pneumonia, bronchopneumonia, or a pulmonary cavity. If a point of pulmonary softening occurs, resulting signs of pulmonary cavity are detected, and this may lead to the diagnosis of pulmonary gangrene. But often very few physical signs are present, although there are hectic fever, an earthy or leaden color, and a rapid weak pulse, all indicating a profound organic process. The gangrene may be latent and discovered only at autopsy.

In the pleuritic form of the process the onset is less sudden, although the pain in the side is violent. The physical signs are those of a pleural collection. About the end of the first week the general condition becomes bad, the temperature assumes the hectic type and exploratory puncture withdraws a very fetid purulent fluid containing particles of sloughing pleuropulmonary tissue. Neither the breath nor sputum is fetid. If the pleurisy be not surgically treated a pyopneumothorax will suddenly develop.

The embolic form of pulmonary gangrene usually follows otitis or mastoiditis. The child is suddenly seized with alarming symptoms beginning with headache, chills, sometimes vomiting, followed by a marked rise in temperature. The general signs of acute systemic infection then develop. Erratic pains arise in the limbs, the spleen and liver are tumefied, and the temperature remains between 102.5° and 106° F. Sometimes severe chills occur. The pulse is small, soft, and rapid, about one hundred and thirty to the minute. The pulmonary signs are of secondary importance and may sometimes be completely wanting. However, they usually exist, but are either overlooked or are not given their true value. The expectoration is not fetid because the foci of gangrene do not usually communicate with the bronchi, but the breath on the contrary is frequently foul. But it is the thoracic pain that claims attention; it is so violent that in itself it may lead to the diagnosis of pulmonary gangrene. Percussion gives few data; auscultation reveals diffuse signs which mean little, such as a slight decrease in the vesicular murmur, a sibilant respiration, sometimes friction sounds, fine subcrepitant rales, disseminated throughout the lungs, rarely large rales. Of the last two forms—the pleuritic and embolic—the former is particularly painful, the second especially serious.

LARGE DOSES OF ALCHOHOL IN THE TREATMENT OF ACUTE NEPHRITIS.

THE art of therapeutics is filled with paradoxes and inconsistencies and to paraphrase another proverb "what is one man's poison may exceptionally be another's cure." Ever since chronic interstitial nephritis became known in England as "spirit drinker's kidney" it has been taken for granted that alcohol is eminently a nephrotoxic substance. About a score of years ago a German whose name escapes us allowed subjects with chronic parenchymatous nephritis a ration of alcohol and announced that the percentage of albumin was not increased by one ounce daily of this substance, corresponding to two ounces of spirits. However, as he observed at the time, the drug served no useful indication in Bright's disease, so that the only interest to the practitioner was academic. According to the late Egbert Lefevre a spree by a subject with this affection is apt to precipitate a crisis of uremia which may prove fatal. So far as we know there has been nothing in medical literature with the exceptions to be noted later which would justify the drinking of alcohol by a nephritic subject. But very recently Dr. Barnardino Masci, a practitioner of Rome, has placed on record the singular fact that a victim of acute hemorrhagic nephritis who became intoxicated, so far from suffering an aggravation of the malady actually recovered. This patient was not a man but a thirteen year old girl, who had developed a nephritis from exposure, which is described in detail. Being dissatisfied with the meager amount

of food allowed her she surreptitiously drank from a bottle of brandy enough to intoxicate her. About thirty hours later she was seen to improve, began to void urine freely, the edema cleared up, and a report by a pathologist some hours later told that neither albumin nor formed elements were present. The report appears in the *Revista Ospedaleria* for December 15, 1921, xi, 23.

Ordinarily such an experience at the hands of a practitioner would not be taken too seriously. It may be that this girl would have recovered spontaneously. Alcohol of course possesses notable diuretic action in health but is hardly equal to overcoming a condition of persistent oliguria. It was only the occurrence of another case in the practice of the author that attracted his serious attention to the remedial use of alcohol in early nephritis. In another case the patient had suffered from this affection for four months, and was on a meagre salt-poor diet with wine practically cut off. The hopeless outlook of the case suggested allowing an indulgence of wine and the patient took advantage of this up to the point of intoxication. This was not repeated, but the subject began to improve and within a week oliguria had been replaced by normal passage of urine. The pathological report showed that the urine had become normal.

In the course of a perusal of the *Muenchener medizinische Wochenschrift* for August 15, 1919, Masci was startled to find an article by Bischoff which was based on some animal experiments. The latter appear to have suggested that alcohol, so far from being a bugbear to the nephritic, might actually be indicated in the treatment of acute glomerulonephritis. Such a change of front recalls the treatment of typhoid in which the fasting regimen was eventually succeeded by various degrees of feeding which culminated in the high calory diet of Coleman. Further one may recall the former prohibition of opiates in uremia until Loomis showed that morphine injections did not aggravate the condition, but on the contrary diminished the severity of the convulsions. The second case of the author given above was reported at the time in *Il Policlinico*, 1920, number 29. To sum up his position salt-poor diet and the balance of the modern treatment does not save these patients, so that we are justified in making use of anything which holds out hope of cure, and alcohol might be fairly tested, in countries where pure whiskey or brandy is obtainable, in acute and subacute nephritis which has proved refractory to other management.

EMOTION AS A FACTOR OF HYPERTHYROID STATES.

ALTHOUGH in exophthalmic goiter hyperfunction of the thyroid glands is the essential factor—and upon this point there seems now to be no question—Maranon (*Annales de Médecine*, 1921) considers that our theories in respect to the pathogenesis do not attribute sufficient importance to emotion as a causative factor. Only the most recent works—especially A. Kocher's article in Kraus und Brugsch's "Spezielle Pathologie und Therapie"—expressly mention violent emotional shock and prolonged emotional states, besides physical traumata, as factors. In a study of 159 cases of Graves' disease, Maranon has attempted to discover the determining cause of the affection, and he has found that in forty-eight cases an intense emotion coincided with the outset of the morbid disturbances. This observer, however, is categorical in his statement that emotion only was not the causative factor, but was the cause of the outburst of a preexisting latent hyperthyroid state, because he expressly states that in the vast majority of the cases (forty-one) the patients presented a marked predisposition, viz., emaciation without any manifest cause with exaggerated affective and neurotic tendencies, paroxysms of gastric hypersecretion, etc. The emotional factor is hence not in itself sufficient other than in a small proportion of cases; in the others a constitutional element is in play.

As to the mechanism of the relationship between emotion and the hyperthroid state the action of the endocrine glands must be admitted, and Maranon refers to Cannon's experiments and his own in which a glycosuria or hyperglycemia was noted following an emotion. Upon injecting small doses of adrenaline—¼ to ½ milligram—exaggerated reactions ensue and it may be supposed that the hyperthyroid state produces a condition of sensibilization of the vegetative nervous system which at least partially constitutes the emotive predisposition, and the adrenaline suddenly secreted on account of the emotive outburst, gives rise to the appearance of the characteristic changes depending upon the emotion. It is probably because of this that patients with Graves' disease are so sensitive to emotions and why a latent hyperthyroid state may become converted into a serious condition from an intense emotive attack, while less frequently a violent emotion or a series of emotions may transform a normal individual into a hyperthyroid subject.

Prolonged depressing influences, far more than a single violent psychic shock, are the cause and this fact may explain why the recent war did not give rise to as many cases of exophthalmic goiter as might have been anticipated. On the other hand the frequency of these depressing causes increases after the age of forty years, especially in women, and the so-called "climacteric hyperthyroid state" is, in reality an argument in favor of the importance that should be attributed to emotions in the genesis of exophthalmic goiter.

DIAGNOSTIC INSUFFLATION OF AIR INTO THE SPINAL CANAL.

THE insufflation of air into the spinal canal after extensive tapping to replace the withdrawn fluid is a comparatively old resource. The question of diagnostic possibilities came up considerably later, although at first rather for intracranial than intra-

spinal affections. Jacobaeus used the therapeutic insufflation of air as far back as 1909, and ten years later tried out the diagnostic possibilities on a case of spinal tumor. In an article which appears in the *Acta Medica Scandinavica* for December 5, 1921, lv., 6, he reports in great detail three cases including the preceding. Another Scandinavian, Josefson, reports a single personal case and apparently these four make up our knowledge of the successful cases. The points of vital importance are the shadow of the air column and the outlines of the tumor emphasized by the same. The author sums up his three cases in stating that in cases two and three the upper limit of the air column corresponded with the lower limit of the tumor as found later by operation; while in the first case the air column stopped somewhat short of the tumor, which may have been due to adhesions or to underinjection of air. In Josefson's case the air column also extended up to the tumor. The method therefore has a certain value in diagnosis, although the chances for error are great. It is certain that air cannot enter the entire canal save where a tumor is absent.

Furuncle of the Upper Lip.

THIS condition belongs among those which call for the greatest exercise of judgment on the part of the surgeon. A tragic death may follow under the let-alone plan and equally after an attempt to extirpate the focus in the interest of prophylaxis. The danger of general sepsis or of metastasis to a vital organ may not be so marked as that of phlebitis propagated to the cerebral sinuses. In the *Archivos de Medicina, Cirugia y Especialidades* for January 14, 1922, vi. 2, 32, Dr. Olivares reports a series of five cases of these lesions which well illustrates their redoubtable character. The first patient exhibited an intense edema involving the entire head. Seen on the fifth day the boil was treated with a crucial incision and an attempt was made to extirpate the necrotic tissue. Death took place forty-eight hours later without relief to the edema or temperature. The second patient was an elderly glycosuric. The edema which extended to the throat was intense, causing asphyctic symptoms. An attempt was made to rescue the patient by extirpating the necrotic focus but, although the asphyxia improved, death resulted within forty-eight hours. The third patient showed the same high degree of edema and the presence of exophthalmus might have suggested thrombosis of the cavernous sinuses; nevertheless radical operation appears to have saved the life of the patient, although convalescence was tedious. The fourth patient, aged fifteen, had a carbuncle and did well after operation on the fifth day by crucial incision. The lesion presented by the fifth patient was so severe as to suggest a malignant pustule. Extirpation was in vain and the patient succumbed several days later.

Diphtheria Antitoxin in Mumps.

THE do-nothing treatment of epidemic parotitis is largely taken for granted, and it occurs to hardly and practitioner to seek new resources. In 1917 the chance improvement following injections of antidiphtheritic serum led to the systematic use of the latter in certain Italian and French clinics, with especial reference to warding off complications, notably orchitis. During 1921 an epidemic of mumps in a French garrison led to a trial of the serum and in the *Journal de médecine de Bordeaux* for January 10, 1922, xciv, 1, Mallié, a regimental surgeon stationed at Angouleme, reports his experience in the same field. The exhibition of the serum was limited to patients threatened with orchitis, who numbered 10, and in every case but one the orchitis seems to have been aborted. The question of routine administration in mumps naturally makes it necessary to fix the frequency of testicular complications; and as this shows considerable fluctuation it would be difficult to gauge the prophylactic powers of the serum. The incidence may be anywhere between 3 and 30 per cent., so that to be certain that wholesale prophylaxis has been successful an extremely low figure must be adduced in a large material. Salvaneschi, the originator of the treatment, injected 26 cases of mumps without a single development of orchitis, and the 3 times in 60 secured by Bonnamour and Bardin which equals 5 per cent. of failures is lower than the average incidence which seems to run about 7 or 8 per cent. for large material. Two sets of figures by des Cilleuls give an average incidence of complications, so that the prophylaxis of orchitis can hardly be said to have been achieved.

News of the Week.

Laboratory Workers Contract Tularemia.—All six of the laboratory workers of the U. S. Public Health Service who have been studying tularemia, a disabling sickness of man which has been known, particularly in Utah, for the last five years, have contracted the disease, two of them being infected in the laboratory in Utah and the other four in the Hygienic Laboratory in Washington. Such a record of morbidity among investigators of a disease is probably unique in the history of experimental medicine. In these workers the disease began with a high fever, lasting about three weeks, and was followed by two months of convalescence. The disease has few fatalities, its chief interest arising from the long period of illness which it causes in midsummer, when the farmers of Utah are busily engaged in cutting alfalfa and plowing sugar beets. The studies into the cause and transmission of the disease show it to be due to a germ, *Bacterium tularense*, which is conveyed by six different insects: the blood-sucking fly, *Chrysops distalis;* the stable fly, *Stomoxys calcitrans;* the debug, *Cimex lectularius;* the squirrel flea, *Ceratophyllus acutus;* the rabbit louse, *Hemodipsus ventricosus;* and the mouse louse, *Polyplax serratus*. Only the first four of these are known to bite man. It appears possible that the germ may also enter through unbroken skin; for instance, that of the hands.

A New Organism Akin to Botulinus. — The United States Public Health Service, in a recent report by Ida A. Benston, announces the demonstration of an anaerobic organism producing a soluble toxin which affects animals in a manner similar to that of the botulism organism but which fails to be neutralized by polyvalent botulinus antitoxin.

Study of the organism, as found in the larvæ of the green fly *Lucilia caesar* sent to the Service, indicates that it differs markedly from the botulinus isolated in the United States, and possibly is more nearly related to the European type described by von Ermengem in 1912, though it differs from this in important respects. Tests on laboratory animals by inoculation and by feeding caused death in from 5 to 71 hours. The most striking pathological result was, as in botulism, the congestion of the blood vessels of the brain and meninges. Efforts are being made to produce an antitoxin. The suggestion that the organism of the disease causes limberneck in chickens has not yet been demonstrated.

Child Welfare Bill.—The first child welfare legislation to be submitted by the State Child Welfare Commission was introduced on March 2. The measure is designed to include male children between the ages of 16 and 18 within the provisions of the present law, which forbids the employment of females of that age in a factory for more than forty-eight hours a week or more than eight hours a day or between the hours of 9 P. M. and 7 A. M.

Red Cross Aid to War Veterans.—According to the report of Judge Barton Payne, chairman of the organization, the American Red Cross expended $9,782,000 aiding disabled veterans of the World War during 1921. Of this amount $7,000,000 was disbursed by Red Cross chapters and the balance by the national organization. Including all forms of assistance the report shows that the chapters rendered services in more than 250,000 instances during each month of 1921.

Advocates Brief Loans of Radium.—In a recent address delivered in Quebec, Dr. C. Everett Field of the New York Radium Institute suggests that all radium hospitals, institutes, and public-spirited physicians possessing large amounts of radium be urged to loan to their community hospital centers an adequate supply for limited clinical use, such a project to cover possibly a ten-day loan four times each year. Dr. Field points out that there is a genuine need for such cooperation throughout Canada and the United States.

No Equity Remedy for Medical Board.—The State Board of Medical Examiners has no authority to bring an equitable petition to enjoin a physician from practising without a license, according to a decision rendered recently by the state supreme court of Georgia. The State Board presented in the superior court of Murray county a petition for an injunction to restrain Dr. Franklin C. Bentley from practising medicine. Bentley set up the fact that a jury in Murray superior court had previously acquitted him on an indictment charging him with practising without a license. He contended that the offense with which the State Board charged him in its petition was a criminal offense, and therefore outside of the jurisdiction of a court of equity. He claimed that the sole and exclusive remedy of the State Board consisted in criminal prosecution, and that the board was without authority to institute equitable proceedings. The court supported Bentley's contention.

Tulane University Plans New Medical Buildings.—Carrying out its original purposes for which an up-town tract was purchased thirty years ago, the Trustees of Tulane University have decided to begin moving the remainder of the medical school to the up-town site. This involves rebuilding the medical school plant with the addition of a university hospital. As the plan carries with it the expenditure of large sums of money it will require a number of years to complete the project. The new medical buildings and hospital will be located on the Tulane campus, facing Claiborne Avenue. The new hospital is designed simply to supplement the work of the Charity Hospital which will still be used, as heretofore, for the chief clinical work of the medical school.

Doctor Indicted for Violation of Harrison Act Acquitted.—Dr. John M. Manning, Mayor of Durham, N. C., was recently indicted in the Federal court at Raleigh for violation of the Harrison narcotic law, and was unanimously acquitted by the jury and judge. In this case the deputy demanded the payment of a penalty of $500, and upon Dr. Manning's refusal, issued a warrant against him and demanded that he be placed under a bond of $10,000, which was given. Judge H. G. Connor who tried the case declared this act on the part of the government inspector a "violation of both the letter and the spirit of the constitution." In charging the jury he said: "Why should a deputy revenue collector, who feels that some regulation of the department has been violated, demand of an honest citizen a penalty of $500, and on refusal, be authorized to have such citizen placed under a $10,000 bond with an implied threat of the Atlanta penitentiary, in order to collect the penalty which no process of law has fixed as being due by the citizen? The public will not stand for such treatment, and it is time to speak out for our protection. Judge Connor pointed out that had the defendant been less prominent he would not have stood upon his rights and the outcome might have been less fortunate.

Physicians Form Protective Association.—Physicians of Bartow county, Georgia, have perfected their plans for the formation of the Bartow County Physicians' Credit Association. They say they have found it necessary to form such an organization for their mutual protection, as physicians have done in other sections of the State.

Rockefeller Foundation Endows School of Hygiene.—The Rockefeller Foundation has given six million dollars to Johns Hopkins University, Baltimore, for endowment and buildings of the School of Hygiene and Public Health. Since this School was opened in 1918 the Foundation has furnished the funds required for its maintenance from year to year. With the acceptance of the present gift the trustees of the University assume full responsibility for the future needs of the School as they develop. The regular courses of study lead to the degrees of Doctor of Public Health, Doctor of Science in Hygiene, and Bachelor of Science in Hygiene. A certificate in public health is given to those completing certain special courses. Short courses or institutes are provided for health workers in service who cannot be absent from their positions for more than a few weeks at a time.

Physicians' Contribution to the Jewish War Sufferers.—Responding to an appeal Jewish physicians of Manhattan and Bronx have contributed over $40,000 to the New York Campaign for Jewish War Sufferers. The original quota assigned

to the medical profession was $25,000, but it is confidently expected that more than double this amount will have been raised before the campaign is closed. The committee in charge gratefully announces that a gratifying number of non-Jewish physicians have contributed to the fund.

Fox Hills Hospital to Be Abandoned.—It is reported from Washington that the sick and disabled ex-service men are to be removed soon from the Fox Hills Hospital on Staten Island. There are over 800 patients now in the hospital, some 500 of whom are suffering from tuberculosis. A number of the patients will be transferred to the Naval Hospital in Brooklyn.

Class Reunion.—The Class of 1892 of the Medical Department of the University of the City of New York, will hold an informal reunion and banquet at the Hotel Commodore, on Wednesday evening, March 29, 1922. All members of the class are invited to attend. The committee in charge includes Dr. Robert Emmet Coughlin, President; Dr. John F. Hagerty, Secretary, and Drs. J. Emmet Tower, William Meddaugh Dunning, and Frederick C. Holden.

Hospital Notes.—Plans have been filed for the proposed new home of the Hospital for Joint Diseases, which is to occupy the block front on the east side of Madison Avenue, between 123d and 124th Streets. There will be two buildings, a seven-story hospital to cost $650,000 and a six-story service building the estimated cost of which is $250,000.

Bids for the construction of the Shriners' Hospital for Crippled Children on Nineteenth Avenue between Lawton and Moraga Streets, San Francisco, have been opened. This is one of the series of hospitals which the Shriners are establishing in large cities throughout the country. It is planned to get the work on this hospital well under way this spring.

The contract has been awarded for the construction of an addition to the Woodlawn Hospital, Dallas, Tex. The new ward is to be used for the care of tuberculous negro patients.

Construction work has been begun on a new hospital at Ozark, Ark. The hospital will contain all modern surgical facilities.

The Soldiers' and Sailors' Memorial Hospital, erected by the Masons of New York State as a memorial to the 16,000 Masons in the state who took part in the World War, is nearing completion and will be dedicated on April 22. The hospital building containing 225 beds is located on the grounds of the Masonic Home at Utica and was erected at a cost of over $1,000,000.

The formal opening of the Conemaugh Valley Memorial Hospital and the twenty-eighth anniversary of the Women's Memorial Hospital Association were observed on February 22 with a reception in the Chamber of Commerce Rooms at Johnstown, Pa.

The International Health Board of the Rockefeller Foundation has selected the Shreveport (La.) Charity Hospital as one of the hospitals to be used in the training of men and women in hospital administration.

The Morrow Hospital, Liberal, Kan., has been purchased by the Roman Catholic Church and has been placed in charge of Catholic sisters.

The Lee Homeopathic Hospital, Johnstown, Pa., will soon open a free dispensary for the treatment of the poor.

The Commissioners' Court of Brownsville, Tex., has gone on record as favoring the plan to build a large county-city hospital at Brownwood that will cost approximately $75,000.

The Board of Health of Indianapolis has tentatively agreed upon plans for the construction of a new ward, administration building and nurses' home at the city hospital. The cost of these additions to the existing plant will be about $600,000.

The New York Skin and Cancer Hospital is making an appeal for funds with which to defray a deficiency of $35,000.

Dr. Hubert Work of Colorado, president of the American Medical Association, recently nominated as Postmaster General by President Harding, has been confirmed by the Senate. He took over the portfolio on March 4, when the resignation of Will H. Hays became effective.

Commander William Seaman Bainbridge sailed from New York Feb. 7 on the *Aquitania* to attend a meeting of the permanent committee of the Congrès International de Médecine et de Pharmacie Militaires, held in Brussels Feb. 20.

Dr. Benjamin Schwartz has been appointed visiting physician to Gouverneur Hospital, New York.

Dr. E. A. Gunderson of Chicago has been appointed to the staff of the Jacksonville (Ill.) Hospital, and will enter upon the duties of his new position immediately.

Dr. Herman A. Gailey has been appointed to the medical staff of the York Hospital, York, Pa.

Dr. Jesse Howell has been named physician to the Toledo (Ohio) Workhouse, to succeed Dr. Phillip Schreiber.

Dr. John D. Spelman of Cincinnati has been appointed superintendent of the Toura Hospital, New Orleans.

Dr. George Burton Stull and **Dr. Carson Coover** of Harrisburg have been named as associated railroad physicians and surgeons of the Pennsylvania Railroad.

Dr. R. J. Hutchinson has been appointed chief-of-staff of the Butterworth Hospital, Grand Rapids, Mich.

Dr. Alfred F. Hess of New York delivered the Cutter Lectures on Preventive Medicine at the Medical School of Harvard University on February 15 and 16.

Gifts and Bequests.—The American Society for the Control of Cancer, at its annual Meeting held at the Hotel McAlpin, New York City, February 23, announced a gift of $29,750 from the Commonwealth Fund of New York City for establishing a field service throughout the United States and Canada.

The will of the late Alfred S. Heidelbach provides for a bequest of $150,000 to Mount Sinai Hospital, New York, and bequests of $5,000 each to the Hebrew Orphan Asylum, the Sanatorium for Poor Children and the Lenox Hill Hospital.

Medical Society Elections.—THE EASTERN HAMPDEN (MASS.) MEDICAL ASSOCIATION, at its annual meeting held in Springfield, Feb. 9, 1922, elected the following officers for the ensuing year: *President*, Dr. R. E. Dickinson, Holyoke;

Vice-President, Dr. J. F. Gaylord, Springfield; *Secretary and Treasurer,* Dr. Elizabeth Young Sullivan Myers, Springfield.

THE SOUTHWEST TEXAS DISTRICT MEDICAL SOCIETY, at its annual meeting held at San Antonio, Feb. 16, 1922, elected the following officers for the ensuing year: *President,* Dr. Houston Neely, Beeville; *Vice-President,* Dr. C. E. Scull, San Antonio; *Secretary-Treasurer,* Dr. William H. Cade, San Antonio.

THE TEXAS PUBLIC HEALTH ASSOCIATION, at its annual meeting held at Austin on Feb. 16, 1922, elected the following officers for the ensuing year: *President,* Dr. Z. T. Scott, Austin; *First Vice-President,* Dr. Elva A. Wright, Houston; *Second Vice-President,* Dr. J. B. McKnight, Sanatorium; *Secretary,* Dr. W. J. Butler, Galveston.

Obituary Notes.—Dr. FRANK BYRNES of Chicago, professor of anatomy in Rush Medical College, and professor of surgery in the Illinois and Loyola Medical Colleges, died in the Memorial Hospital, following an operation performed last November, on March 1, at the age of fifty-eight years. He was graduated from Rush Medical College in 1894, and was an associate of the late Dr. John B. Murphy.

Dr. JAMES WILLIAM FLOW of Kannapolis, N. C., a graduate of the North Carolina Medical College, Charlotte, in 1898, died of Bright's disease after a lingering illness, on February 9, at the age of fifty years.

Dr. JOHN JAMES M. NEVILLE of Wortendyke, N. J., a graduate of the College of Physicians and Surgeons, New York, in 1876, died on February 12, at the age of seventy-three years.

Dr. DARWIN CRAWFORD SMITH, a graduate of Hahnemann Medical College, Philadelphia, in 1869, died at his home in Lewistown, Pa., on February 13, at the age of seventy-five years.

Dr. OTTO AUGUSTUS WALL of St. Louis, Mo., died of heart disease on February 13, at the age of seventy-six years. He was graduated from Bellevue Hospital Medical College in 1871. He later taught at the Missouri Medical College and the St. Louis College of Pharmacy. He was a former president of the St. Louis Medical Society. He was the author of several works on pharmacology and materia medica.

Dr. WILLIAM CARSON of Shelbyville, Mo., a graduate of Washington University, St. Louis, Mo., in 1868, died on February 10, at the age of seventy-five years.

Dr. JAMES WOODS BABCOCK of Columbia, S. C., died at his home on March 3, at the age of sixty-six years. He was graduated from Harvard Medical School in 1886. He was a former superintendent of the State Hospital for the Insane at Columbia and later professor of psychiatry at the University of South Carolina. Dr. Babcock was one of the first physicians in the South to recognize pellagra and was coauthor with Dr. C. H. Lavinder of the United States Public Health Service of the first treatise in the English language on pellagra. Dr. Babcock was secretary of the National Association for the Study of Pellagra and its former president.

Dr. ALBERT LE ROY SHELTON, the first Christian missionary allowed to enter Thibet, was assassinated by robbers at Batang, near Thibet, on February 17. Dr. Shelton was born in Indianapolis in 1875 and was graduated from the Medical Department of the University of Kentucky.

Dr. MARTIN M. KITTELL of Jamaica, N. Y., a graduate of New York University Medical School in 1891, died of pneumonia on March 31, at the age of fifty-six years. He was a fellow of the American Medical Association and visiting physician to the Queensboro, St. Mary's and Flushing Hospitals.

Dr. JOSEPH W. BATTERSHALL of Attleboro, Mass., died following an illness of several months on February 24, at the age of seventy-nine years. He was graduated from the College of Physicians and Surgeons, New York City, in 1874, and formerly served on the Attleboro Board of Health.

Dr. JAMES D. NYE, formerly a practising physician of Fond du Lac, Wis., died at his home in Denver, Colo., on February 21, at the age of 72 years. He was graduated from Hahnemann Medical College and Hospital, Chicago, in 1883.

Obituary.

HARRIS GRAHAM, M.D.

BEIRUT, SYRIA.

DR. HARRIS GRAHAM, professor of pathology and practice of medicine in the American University of Beirut, died on Feb. 27 in his sixtieth year at Beirut, Syria. Doctor Graham was born at Ottawa, Canada, took his A.B. at Toronto University and his M.D. at Michigan University in 1885, in which year he was commissioned by the American Board as a missionary to Turkey. He served four years as a professor in the medical school of the Central Turkey College, a missionary college at Aintab, until the Turks closed the school. He was called to the vacant chair of pathology at Beirut and occupied it with rare distinction for thirty-three years. He was the senior professor on the active list of the university faculty. He also served for nearly a quarter of a century on the executive committee of the Lebanon Hospital for the Insane, situated near Bierut. Dr. Graham studied bacteriology in Koch's laboratory in 1892, and subsequently worked in Berlin and Vienna. He first demonstrated that the culex carries the germ of dengue fever and claimed that he had discovered its microbe. His findings were corroborated by some and denied by others.

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Correspondence.

CONCERNING "A VERY GRAVE CHARGE."

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—My attention has been called to a letter in the MEDICAL RECORD of Feb. 18, headed "Denial by Proxy of a Very Grave Charge," and signed by Dr. J. Milton Mabbott of New York City. I should pay no attention to this letter if it were not for the fact that it might be read by people not familiar with the facts of the narcotic situation and the history of its development, and who may not have read my resolutions and speech in Congress. The widespread recognition of the need for the inquiry asked for by me and the conditions outlined in my speech upon which the demand was predicated, is shown by the countrywide support and indorsement of my action, and it makes me hesitate to trouble to answer this letter. However, since, to quote Dr. Mabbott, it may "convey an entirely erroneous impression to persons unfamiliar with the facts," I will simply make an observation or two, and let the matter rest there.

It is regrettable that the letter signed by Prentice and Harris and Hubbard and Greenfield, appearing in the *Brooklyn Eagle*, and which Dr. Mabbott seems to think contains so much valuable information, was not published in full in his letter. However, I do not blame him for not including it, because it answers itself to anyone who knows the facts outlined in my speech. There is no parallel to it in history outside of the case of the "Poo Bah" in "The Mikado," who could quote himself under the "proxy" of his various positions to prove anything he might say. Please add this *Eagle* letter to the following incomplete list of their interlocking activities and committees, etc., which I printed in my speech in Congress on Jan. 12, and which I have had mailed to most of the physicians of New York. The letter in the *Eagle* makes an interesting addition to the list of activities and "proxies" of the "Poo Bahs," and relieves me of any further necessity of discussing this interesting bit of epistolatory evidence in which they further involve themselves.

The letter in the *Eagle* and the letter in your journal prove how wise it is for this group not to come out into the open themselves and say much, but to do their "denial by proxy."

The following list is taken from the *Congressional Record*, Jan. 12, 1922, page 1336, and might be headed:

SOME OF THE ACTIVITIES AND PROXIES OF THE POO BAHS.

It is interesting to pause for a moment and scan the lists of so-called important medical committees from which have come announcements whose influence has more or less dominated the narcotic question for the past two years. For example:

1. Committee on narcotics, Council of Health and Education, American Medical Association. There we find Harris and Prentice.
2. Committee on narcotics, New York County Medical Society; Harris, Prentice, Hubbard, and Healy.
3. New York State Department of Drug Control, stated to have been operated under the influence of Harris, Prentice, Hubbard, and Lambert.
4. New York City Department of Health. Narcotic administration directed largely by Hubbard and Copeland.
5. Legislative committee, New York County Medical Society: Harris, Prentice, and Healy.
6. Health committee of Greater New York, whose report was printed in the *New York State Medical Journal*, May, 1920, as an argument in favor of the Cotillo bill: Harris, chairman; Hubbard, Prentice, and Healy reputed to be members of influence.
7. Cotillo and Fearon-Smith bills (New York), stated in print to have been written by Harris and Greenfield.
8. Report of narcotic committee of New York County Medical Society, read by Prentice. Committee: Harris, Prentice, Hubbard, and Healy.
9. Appeared at Albany in support of the above bills: Harris, Hubbard, Prentice, Healy, and Greenfield.
10. Appeared at board of health to advocate municipal code to conform with these bills: Hubbard, Prentice, Healy, Greenfield, etc.
11. Editor of bulletin of department of health, New York City: Hubbard.
12. Said to have been referred to from heads of administration at Washington as men to talk to for narcotic information and rumored to exert great influence with local offices of prohibition and Department of Justice: Harris, Hubbard, Prentice, and Greenfield.

We might go on with this at considerable length, but the above are sufficient examples of the concentrated influence of these few men in important places of authority and announcement. It would be interesting to discuss the actual qualifications and connections of this interlocking directorate, but time and space would be better utilized in outlining the general subject and leaving these matters of detail to a future investigation.

So if you will add to this list an "unlucky thirteen," in which they still further "put their foot in it" by quoting themselves, in Nos. 1, 2, 5, and 12, it will make another interesting exhibit. If you could find space for the original letter mentioned by Mabbott, I shall be very glad to try to get a copy of it and send it to you. It shows clearly why it is necessary for these people to use "proxies," and needs no answer other than the exposures of the above list.

My resolutions asking for investigation are simply the reiteration of requests that have come from all over the country and from many places. They and my speech are simply the collecting of a small part of the often recorded facts and exposures to which administration, medical and lay, has paid no attention, and whose neglect has permitted the narcotic situation to come upon this country and develop. My work is in the open, and is built upon the records and past experience. I need no "proxies." The record speaks for itself. All I have done is to present part of it where it can be no longer ignored; and the response and support from all over the country shows how badly it is needed and that this matter be taken out of the hands of "proxies" and brought out into the open. As to Dr. Mabbott's quotation of Congressman Mill's speech, I simply ask my fellow member in Congress to look up the evidence and record and see if he would not reverse his position and join in the growing demand for an investigation in a place where it cannot be controlled by any clique or interest.

Since making this speech and resolutions, I have been in receipt of communications from all over the country. They strengthen my position, and I want to say that if I had had the information ther that has come to me since, my speech would have had, if possible, more direct statements than I have used.

Apparently since the rise to power and influence

of these interlocking activities and interests and their influence over administration, these things and this situation have become inconceivably worse, and not to be longer tolerated by a self-respecting medical profession and a free people. If the medical profession's own committees and officers will do nothing to correct this state of affairs or to help the profession, it certainly was time to bring it before Congress. Let us eliminate the "proxies" and the secret conferences and committees, etc., and expose this whole medical farce-tragedy and get the whole thing out into the open.

LESTER D. VOLK.

HOUSE OF REPRESENTATIVES.
WASHINGTON, D. C.

DEEDS *VERSUS* WORDS.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—In a recent letter to the Editor of the MEDICAL RECORD, Dr. J. Milton Mabbott says, "After a preamble relating to the defense of members of the Society who were awaiting trial for indictment by a Federal Grand Jury for alleged misconduct under the Harrison law, in advocating that our counsel should aid in their defense, if preliminary investigation seemed to warrant such procedure, I put myself on record as follows: 'In other words, I believe your action and the Society's position should be determined in every case on its merits, but giving the benefit of the doubt (if there be elements of doubt) to our accused fellow-member, be he great or small, be he accused of a great or small offense, and without undue deference to the rating of the interests arrayed against him.'"

Fine words, but "fine words butter no parsnips." What has actually been done? Take one example. A "fellow member" Dr. Christian F. J. Laase was accused, tried, acquitted, and died as a result of what he went through. What was done in the New York County Medical Society about his case?

Dr. Mabbott is distressed that those mentioned in Congressman Volk's speech should be asked to vindicate themselves, "and at their own expense." How about Dr. Laase? Was Dr. Mabbott perturbed because that member had to vindicate himself at his own expense and undergo prosecution and persecution, at a final cost which included his life? Dr. Mabbott should be heard from on these points. What has ever been done to find out the truth about the cases of Dr. Laase and of Dr. Bishop? Never mind any more evasions and "proxies" and words. What have he and his fellows on the inside of the officialdom of the Medical Society of the County of New York ever done to find out the truth about these two "accused fellow-members"? I would ask Dr. Mabbott to come out into the open and tell the facts. Never mind what he said, what has he done? What has the New York County Medical Society done to find out the truth about Dr. Laase and about Dr. Bishop?

If his friends are innocent they ought to be glad to have the investigation that Congressman Volk has asked for. What is there to get nervous about? If Dr. Mabbott knows anything he should tell it. It might help solve the drug problem.

JOHN P. DAVIN, M. D.

117 WEST SEVENTY-SIXTH STREET.
NEW YORK.

OUR LONDON LETTER

(From Our Regular Correspondent.)

LONDON, February 14, 1922.

Cancer Research. — Sir William Veno has consented to alter the conditions governing his offer of £10,000 for the discovery of a cure for cancer, and will give £1,000 a year for ten years for the purpose of cancer research. Lord Atholstan holds to his original offer of $100,000 prize for a cure, but will devote an equivalent sum to research purposes in addition. Sir William Veno is one of the most successful of the owners of proprietary medicines and an American. Lord Atholstan is the owner of the Montreal *Star*.

Physique and Fitness.—Another Industrial Fatigue Research report has just been issued in which it is stated that boys from Essex, mainly an agricultural county, are of definitely superior physique to those of Manchester. From these statistics, the authors of the report draw the inference that the country youths excel in stamina and general fitness which, according to Dr. Ritchie, medical officer of health of the English Education Department, is fallacious or, at any rate, misleading. In his opinion, the inferior height and weight standard of a big city's young men, so long as the disparity is a normal one and is not the effect of debility, warrants no such inference. Here are two points with which people of any big city may solace themselves: (1) Bulk is no criterion of fitness; (2) statistics relating to size, weight, and strength, unless interpreted by people competent to judge their relative meaning and value, may lead to quite fallacious deductions. Of course, a city youth is usually smaller than the countryside product, but the test comes when both of these are fully trained to a standard of fitness, not while they follow their ordinary daily calling. It is time that the present comparison was very justly made between Manchester boys following a calling in which they might be expected to develop a standard of strength and Essex boys engaged in work which might be calculated to do likewise; but this does not supply us with the requirements for a decision upon fitness, which is something quite other than bulk. As to a mental comparison, Ritchie agrees with the report that it would, indeed, be interesting to learn what difference, if any, exists between boys of the two communities. The history of the late war appears to bear out this view. The men from the big cities, although not so bulky as the country bred ones, showed themselves to be of equal staying powers, and, what is an important point, of equal courage as compared with those from rural districts. So far as mental powers are concerned, generally speaking, it may be said that the youth born and brought up in a town possesses a more agile brain, thinks more quickly than his country brother; but this does not mean that he is superior in brain power. Is not also the town-reared youth more immune to disease? Do not his heredity and environment tend to render him so?

Meeting of the British Medical Association in Glasgow, July, 1922.—The deliberations of the representative body will begin on July 21 and will continue daily, Sunday excepted, up to the afternoon of July 25. The annual general meeting will

be held on July 25, in the Bute Hall of Glasgow University, and in the evening the president will receive the foreign guests and the representatives of the oversea branches and will deliver his address. Professor J. Graham Kerr has agreed to deliver the Popular Lecture on the evening of July 25. The sections will meet for discussion on the forenoons of July 26, 27 and 28 in the various class rooms of the university, while a series of demonstrations will also be arranged for these days, Mr. R. H. Parry having been appointed director of demonstrations. The social program arranged is a varied one. The Glasgow Corporation will give a civic reception. A university reception will be given on the evening of July 26 in the Bute Hall and Hunterian Museum, and the Royal Faculty of Physicians and Surgeons has also undertaken to entertain the members on one evening. The annual dinner of the association will be held in the St. Andrew's Halls on the evening of July 27. Afterwards, there will be a dance in the ballroom suite of the halls. The Publishing Committee has well in hand the preparation of the Book of Glasgow, which is being specially written for the meeting.

Primitive Instincts.—Reference was made in a former letter to the discussion on psychology and especially to that part of it which deals with instinct in human beings which has been going on in the *Medical Press and Circular* for some little time past. The contention of the writer was that human actions are largely guided by instinct. Dr. Bernard Hart, lecturing at the Royal Society of Arts, London, a few days ago, said that his first business was to shatter the illusion that only animals were guided by instinct, and that man was guided by pure reason and intelligence. Man was a creature driven by instinctive forces, and reason and intelligence were merely guides or weapons in the hands of these forces. The sex instinct was one of the most powerful in the human mind, and was responsible unquestionably for much of our behavior and mental activity. Another great instinct was the herd instinct, by which the thoughts and actions of the individual became consonant to the community in which he lived. It was the mainspring of convention. Conflict between great instinctive forces was inevitable and the ideal solution of those conflicts was to be found in conscious control. It was imperative that education should take account of those instinctive forces, and the real task of education should not be solely the acquiring of knowledge but the cultivation and coordination of those instinctive forces in the light of reason and intelligence.

University of London.—Several new chairs have been instituted at the University of London.

Post-Graduate Work in Gynecology.—The staff of the Hospital for Women, Soho Square, has organized a scheme of post-graduate work in gynecology. Three sessions are to be held in the year, in January, March, and October, each of six weeks' duration. The hospital contains sixty-eight beds and over 14,000 out-patients attend in the course of the year. There is a well equipped laboratory and museum and an installation of the most modern *x*-ray apparatus for the treatment of carcinoma of the uterus.

Progress of Medical Science.

Boston Medical and Surgical Journal.

February 23, 1922, clxxxvi, 8.

1. Typhus Fever at the Boston City Hospital. George C. Shattuck.
2. The Surgical Management of Toxic Goiters. John de J. Pemberton.

1. Typhus Fever at the Boston City Hospital.—George C. Shattuck began this work at a time when cases of typhus fever were being found among immigrants recently arrived in New York with the object of learning the number of cases recorded at the Boston City Hospital in recent years, to ascertain whether cases of typhus had been overlooked, and to determine the principal diagnostic difficulties relating to typhus in this locality. It was found that the records of the Boston City Hospital for the past ten years show that during that period four cases have been diagnosed as typhus fever. In a few cases diagnosed otherwise, a diagnosis of typhus fever would have been justified. The signs in another small group of cases are highly suggestive of typhus. Numerous cases, probably not typhus, had eruptions suggestive of typhus. There would seem to be a possible danger of mistaking for typhus an eruption in typhoid fever, paratyphoid fever, pneumonia, influenza, measles, cerebrospinal fever, eruptions in septic conditions, in alcoholism, and drug eruptions. Rashes strongly suggestive of that of typhus have been caused by arsphenamine. The diagnosis of typhus in atypical cases may be difficult or impossible by the use of known clinical methods, even when supplemented by the ordinary diagnostic procedures of the laboratory. Two of the newer methods of diagnosis are especially valuable, namely, (a) the proteus reaction of Wilson, Weil, and Felix, and (b) microscopic examination of bits of skin excised during life, which in typhus fever have a characteristic pathology.

2. The Surgical Management of Toxic Goiters.—John de J. Pemberton bases this paper on 1,224 operations for exophthalmic goiter performed on 677 patients from July 1, 1920, to July 1, 1921. Of these twenty-three died, a mortality of 1.87 per cent. by operations and 3.39 per cent. by patients. From July 1, 1920, to July 1, 1921, 1,954 patients with goiter were operated on in the clinic. Of these 101 had ligations only; 1,853 patients had partial thyroidectomies, in 465 of whom the thyroidectomy was preceded by one or more ligations. Thirty-five patients died, a mortality of 1.78 per cent. Eight of 996 patients with simple goiter, unassociated with hyperthyroidism, died, a mortality of 0.8 per cent. Four of 281 patients with hyperfunctioning adenomatous goiter died, a mortality of 1.4 per cent. Five, or 22 per cent., of the patients who died had recurrent goiter; they represent 8.9 per cent. of the fifty-six patients in whom the disease recurred. The deaths were due to three main causes: (1) Accidental causes, three patients; (2) intense hyperthyroidism, seven patients; and (3) moderate hyperthyroidism plus pulmonary complications due to the patient's lowered resistance, or some intercurrent cause as hemorrhage or infection, twelve patients. The deaths due to severe hyperthyroidism are preventable to a large extent; either an error is made in selecting the patient for operation or in selecting the operation for the patient. The basal metabolic rate as an index to the operability of a patient with exophthalmic goiter is valuable only when considered with the clinical history and findings. The high operative risk clearly contraindicates operation for exophthalmic goiter in three phases of the disease; that is, during an impending crisis (evidenced by a steady rise in the metabolic rate and loss of weight), during a crisis, and immediately after a crisis. Added risk is obviously encountered in patients with low grade infections, lowered resistance, dilated hearts, visceral degeneration, etc. Primary thyroidectomy unless contraindicated by some of the factors enumerated is indicated in patients with mild or moderate hyperthyroidism, whose basal metabolic rate is not more than +55 per cent., provided they are carrying the increased load well. In a second group of cases with a higher basal metabolism about whom doubt exists as to the advisability of recommending thyroidectomy, ligation of the superior thyroid is advised as a test. A

third class of patients are obviously in need of preliminary medical and surgical treatment before major surgery can be attempted. After the ligation of both superior thyroid vessels and a period of rest (three months), the patients, with but few exceptions, show a really remarkable improvement, but operation for resection of the thyroid gland should be insisted upon, or a "recurrence" will most likely follow.

Journal of the American Medical Association

February 25, 1922, lxxviii, 8.

1. The Relation of Labyrinthine Tonus to Muscle Tonus. J. Gordon Wilson.
2. Heart Disease in Industry. Cadis Phipps.
3. Method of Dealing with Intestinal Loops Densely Adherent to an Umbilical Hernia. Thomas S. Cullen.
4. Congenital Syphilis in Institutional Children. Joseph S. Lawrence.
5. Anomalous Origin of Gall-Bladder: Report of a Case. W. T. Coughlin.
6. Quantitative Bacteriology of the Tonsils. H. D. Caylor and George F. Dick.
7. Definition of Experimental Typhus Fever in Guinea-Pigs. Peter K. Olitsky.
8. A Technique for the Repair of Relaxed or Lacerated Perineum. R. L. Payne.
9. Actinomycosis of the Urinary Organs: Report of a Case of Pyelonephritis in Which Actinomyces Bovis Was Found. H. L. Cecil and J. H. Hill.

1. The Relation of Labyrinthine Tonus to Muscle Tonus.—J. Gordon Wilson summarizes this study as follows: (1) Tonus is a plastic state of the muscle associated with the maintenance of normal attitude. (2) This state is under the control of reflex nerve impulses, which automatically produce a modification of the muscle to maintain a particular attitude. (3) One source from which these reflex nerve impulses arise is the labyrinth. (4) These reflex nerve impulses, determining the amount of muscle lengthening and shortening, together with the degree of fixation, depend upon antigravity impulses arising in the labyrinth. (5) The labyrinth is chiefly concerned with the maintenance of the head in space. As a corollary, the labyrinth influences secondarily the muscles of the trunk and limbs. (6) The muscle proprioceptors are concerned with segmental posture. The labyrinth is concerned with total posture. So far as trunk and limbs are concerned, the labyrinth may be regarded as a mechanism superimposed on the segmental. (7) In unilateral destruction of the labyrinth the deviation of the eyes and neck is due to tonic activity of the other labyrinth. (8) The stimulation of the nerves in the labyrinth is due to mass movements of the otoliths and fluids in the canals.

6. Quantitative Bacteriology of the Tonsils.—H. D. Caylor and George F. Dick present a study of a series of tonsils in respect to bacterial count, size, weight, and pathological change in the tonsils, and to the presence of disease in other parts of the body. In this series the tonsils from patients who complained of recurring sore throats or who had at the time of operation enlarged cervical glands, contained from two to twenty times as many bacteria per gram as did the tonsils from patients who did not complain of sore throat or have enlarged cervical glands. The results of this work indicate that tonsils should not be regarded as harmless because they are small. It is often not possible to express pus from the smaller tonsils because drainage of the crypts is prevented by fibrous tissue. The total bacterial content, as well as the number of bacteria per gram, may be much greater than that of large tonsils. Quantitative bacteriology is of more aid than is qualitative bacteriology in determining the condition of tonsils that have been removed, and in determining their possible relation to disease elsewhere in the body.

7. Definition of Experimental Typhus Fever in Guinea Pigs.—Peter K. Olitsky draws attention to the conditions necessary to establish experimental typhus fever in guinea pigs, indicates the nonspecific or pseudoreactions which should be considered as possibilities in the determination of each of these criteria, and finally shows that no interpretation of an experiment can be made unless all the requirements are met and the nonspecific or pseudoreactions are considered. Experimental typhus fever presents constantly and regularly certain manifestations, which stamp it unmistakably as a typical disease. These manifestations consist of a characteristic febrile reaction, of indefinite transmissibility from animal to animal, particular histological changes in various organs, but mainly in the brain, absence of bacteria cultivatable in any aerobic or anaerobic medium whatever, and, finally, immunity, determined by cross-immunity tests, to materials carrying known typhus virus. Nonspecific or pseudoreactions can be produced with a variety of substances such as various infective bacteria, and the failure to realize this fact may lead, and, indeed, has already led, to erroneous interpretations of inoculation experiments in guinea pigs in the course of studies on the etiology of typhus fever.

9. Actinomycosis of the Urinary Organs.—H. L. Cecil and J. H. Hill report this case, which occurred in a healthy, robust man thirty-five years of age. He had an infection of both kidneys with an organism rarely found, *Pseudomonas pyocyanea*, complicated with the presence of *Actinomycos bovis*. He had been treated for two years with practically all drugs, both old and proved, and new and experimental, without the slightest benefit. The writers are able to find only ten similar cases in the literature, which they summarize.

The Lancet.

February 4, 1922, ccii, 5136.

1. Faulty Food in Relation to Gastrointestinal Disorder. Robert McCarrison.
2. Problems of Throat and Ear Disease in School Children. T. B. Layton.
3. Experiments upon Immunity to Tumor Growth. Helen Chambers, Gladwys M. Scott, and S. Russ.
4. An Attempt to Procure Immunity to Malignant Disease in Man. Thomas H. Kellock, Helen Chambers, and S. Russ.
5. The X-Ray Diagnosis of Gastric Ulcer. A. E. Barclay.
6. The Serological Test in Typhus. W. James Wilson.
7. The Earliest Stage of Senile Cataract. Henry Smith.
8. Plague, Cholera and Typhus in Turkey and Adjoining Countries. A Twelve Months' Record. F. G. Clemow.

4. An Attempt to Procure Immunity to Malignant Disease in Man.—Thomas H. Kellock, Helen Chambers, and S. Russ in a previous paper have recorded that immunity to transplanted malignant disease can be produced in animals by inoculating them with tumor tissue which has been exposed to a suitable dose of radiation, and that this can be done without risk of a tumor forming at the site of injection. With these results it has seemed to these investigators worth while to test the process in the human body. In all thirty cases of cancer have been treated. The time is too short to permit of definite statements as to the value of the treatment to be made. All that the writers claim at present is that, with efficient technical precautions, the treatment can be carried out without causing tumor formation or serious effects. The cases treated were those in which the disease was at such a stage that complete surgical removal was not considered possible, but not so far advanced as to preclude the prospect of life for some months. At operation only enough tumor need be removed to provide sufficient material for subsequent injection. In cases in which glands have been involved no attempt is made to remove all the growth. The wound is closed and dressed. Two pockets are then prepared in the abdominal wall, on either side of the midline, in the following manner: An incision about an inch long is made down to the deep fascia, and a strong pair of sinus forceps thrust along between the subcutaneous tissues and muscles and then opened out. The pockets thus formed are fan-shaped with the narrow end upwards, so that injected materials tend to be retained. The pockets are made large in order to increase the area of contact between the patient's tissues and the injected material. If this precaution is not taken much of the tissue injected undergoes autolysis and is discharged. A large sized drainage tube is put into each of the openings, nearly to the bottom. With aseptic technique the specimen removed is put through a mincing machine into a shallow dish, and spread into a layer of uniform thickness. The rim of the dish is smeared with sterile vaseline, covered with a sheet of mica, placed in a larger dish, covered with a sterile towel, and exposed to *x*-rays. After a radiation dose of two rads the minced tumor is sucked up into an all-glass syringe, fitted with a wide aperture. It is taken

to the ward and injected in equal quantities into each drainage tube. The tubes are then withdrawn, previously placed ligatures are tied, and the wound sealed with gauze and collodion. It is very essential that a lethal dose of *x*-rays be given. As far as is known at present the addition of antiseptics to the irradiated material weakens its immunizing properties; there is also some indication that the tumor tissue is of no value if infected with septic organisms sufficient to cause an abscess to form at the site of injection. A number of cases are cited which show encouraging results following this procedure.

6. The Serological Test in Typhus.—W. James Wilson summarizes his serological observations in typhus fever as follows: Proteus X 19 when rapidly dried in vacuo can preserve its agglutinability as regards typhus serum for months at room or body temperature. When emulsions are made of such desiccated bacilli they can be for some weeks preserved with 0.1 per cent. formalin without their sensitiveness being impaired. These facts make it possible to prepare a stable sensitive diagnosticum and to dispense with living cultures, the advantage being obvious in military service in the field and also in enabling one to use an emulsion of known sensitiveness. It is well known that proteus X 19 in the living state is apt to vary as regards its agglutinability. Desiccation of bacilli renders them less agglutinable by specific serums, and to this rule proteus X 19 is no exception. It would therefore seem that the typhus serum agglutinins for X 19 are different from those produced in the blood of an animal by inoculation. Coliform, non-lactose fermenting bacilli are occasionally found in typhus urine and are agglutinated by the serums not only of the individual patient but of other patients. On one occasion a strain of *B. pyocyaneus* was isolated which was agglutinated by a few of the typhus serums.

7. The Earliest Sign of Senile Cataract.—Henry Smith ventures the hope that the general practitioner will learn to recognize that failing distance vision in people over forty is the first sign of cataract, and that he would do well to send the patient to an ophthalmologist for investigation. If this is done it will be found that the early stage of cataract is more frequent in people over fifty than has been supposed. The writer recommends the subconjunctival injection of iodide of potassium and finds that from 15 to 18 grs. to the ounce gives an efficient hyperemia. He advances the theory that iodide of potassium or cyanide of mercury act by producing hyperemia, which affects the nutrition of the lens, or the elimination of its waste, or both. He thinks more attention should be given to the nutrition of the lens and vitreous than has been given in the past.

British Medical Journal.

February 4, 1922, i, 3188.

1. An Address on Some Aspects of the Abdominal Emergencies of Childhood. John Fraser.
2. A Lecture on Fats in Relation to the Genesis of Goiter. Robert McCarrison.
3. The Recognition of Aortic Incompetence. E. M. Brockbank.
4. The Treatment by Rest of Acute Infection of the Knee-Joint. John O'Conor.
5. Case of Jejunocolic Fistula following Gastroenterostomy. Claude Frankau.
6. Serological Investigation of Oriental Sore. W. H. McKinstry.
7. The Treatment of Rat-bite Fever with Novarsenobillon. Norman Briggs.

2. Fats in Relation to the Genesis of Goiter.—Robert McCarrison reports feeding experiments carried out on pigeons in the Nilgiri Hills of Madras, 6,000 feet above sea level, where goiter is practically unknown. The incidence of goiter in pigeons fed on mixed grains and butter, but without onions, was 65 per cent.; in the remaining 35 per cent. there was no goiter. The cases that did not develop thyroid hyperplasia have a significance second only in importance to those that did. They suggest that the excess of butter was not in itself the cause of goiter, but that it was made a potent contributing or determining cause by the operation of some other factor or factors. In other animals under similar conditions oleic acid and cod-liver oil were substituted for the butter. The outstanding results of the experiments were: (1) The potency of the conditions of close confinement, want of exercise, overfeeding, and fecal contamination in the causation of goiter. (2) The completeness of the protection against goiter afforded by cod-liver oil. (3) The influence of butter in favoring the development of the thyroid swelling, and the still greater influence of oleic acid in so favoring it. (4) The pronounced individual idiosyncrasy to the disease as evidenced by size of the goiter. The latter fact suggests the possible influence of individual variations in metabolic rate in determining the size of the goiter, the greater need of some individuals for iodine than of others, and the more potent operation in some cases than in others of bacterial agencies in the digestive tract in hampering the absorption or utilization of iodine.

The fact that the free oleic acid appears to be the more potent in favoring thyroid production than butter suggests that it may be by means of the free unsaturated fatty acid derived from the butter in the digestive tract that the latter exerts its harmful action on the digestive tract. Experiments on tadpoles showed that an excess of the several fats in the food caused remarkable retardation in their rate of growth. Iodine in amounts of 0.5 to 1.0 mg. per gram of food mixture tended to prevent the retardation of growth induced by butter and oleic acid, but not that induced by cod-liver oil. So far from iodine exercising any compensating action on the retardation of growth induced by cod-liver oil, the retardation was increased by the iodine. The retardation of growth induced by the fats was associated by delayed development of the thyroid gland; it appeared to cause a diminution of the colloid content of the gland out of proportion to its retardation in development. It would seem that oleic acid has a special tendency to prevent the storage of iodine-containing colloid in the thyroid gland. The writer points to the possibility that abnormal conditions may arise in connection with the "fat-thyroid-iodine balance" in consequence of bacterial action which would render by one means or another the small amount of iodine available in the food relatively deficient, or free oleic acid relatively excessive. He is glad that this latter aspect of the problem is at length receiving attention.

3. The Recognition of Aortic Incompetence.—E. M. Brockbank asserts that on many occasions in recent years he has found incompetence of the aortic valve which had not been previously recognized or suspected. Aortic incompetence is most likely to be overlooked when it occurs, as it not uncommonly does, without any accompanying obstruction or stenosis to attract attention to the diseased aortic valve by its definite, easily recognized systolic murmur heard over the second right costal cartilage. When a heart is enlarged and beating regularly, and at a moderate rate, and there is no increase in blood pressure, aortic valvular disease must be suspected and auscultatory evidence sought for, not only over the aortic cartilage but also down the left border of the sternum, and especially over the tricuspid region of the precordia, where the earliest evidence of aortic incompetence, Dr. Brockbank maintains, is most likely to be found.

6. Serological Investigation of Oriental Sore.—W. H. McKinstry has examined the blood of twenty-eight cases of oriental sore in all stages of the disease, according to the Wassermann technique used at Military Hospital at Rochester Row. In twenty-seven of the cases the diagnosis was established by the microscopic finding of Leishman-Donovan bodies. In the one case in which Leishman-Donovan bodies were not found there was no doubt from the clinical history and position of many old cicatrices that the case was one of oriental sore. Of the twenty-eight cases only one gave a positive Wassermann reaction. This case had points of clinical interest which helped to establish the fact that a positive Wassermann reaction is practically never found in oriental sore without concomitant syphilis. While admitting that eighteen cases is a small number upon which to dogmatize, McKinstry is confident that in the absence of concomitant syphilis, the Wassermann test never gives a positive reaction in cases of oriental sore.

New Orleans Medical and Surgical Journal.

December, 1921, lxxiv, 6.

1. Rest in Tuberculosis. E. D. Price.
2. A Clinico-Philosophic Interpretation of Immuno-Therapy. G. H. Sherman.
3. The Practical Value of the Slide Diagnosis of Gonorrhea. A. Mattes.
4. On the Management of the Chronic Nephritis. Arthur A. Herold.
5. Treatment of the Soul. John B. Elliott, Jr.
6. Statistics in Louisiana. Oscar Dowling.
7. Needed Hygiene. Maud Loeber.
8. Diagnosis and Susceptibility in Hay Fever. William Scheppegrell.

3. The Practical Value of the Slide Diagnosis of Gonorrhea.—A. Mattes presents this paper not to open up a new field of endeavor but to more forcibly impress, if possible, the feasibility, the importance, and, above all, the diagnostic value of the slide diagnosis of gonorrhea. It should be remembered that a case need not necessarily be considered gonorrheal or so diagnosed upon finding intracellular diplococci in a simple stain. The organisms with which gonococci are often confused are colon bacilli, staphylococci, and *Micrococcus catarrhalis*. Gram's stain aids greatly in the differentiation and should be employed in all cases to avoid confusion and error. Making a diagnosis on history alone is not justified in these days of modern practice. Non-specific infections of the genitourinary tract occur very frequently. The symptoms are practically the same as those of gonorrhea. However, the prognosis and the treatment are entirely different. The practice of medicine has outgrown quinine administration for the diagnosis of malaria, and now awaits a laboratory diagnosis before treatment is begun. Should not the same apply to the diagnosis of gonorrhea as well?

8. Diagnosis and Susceptibility in Hay-Fever.—William Scheppegrell reviews the symptoms and describes the tests employed to verify the diagnosis of hay-fever. He points out that an attack of hay-fever not only does not develop immunity but hypersensitiveness due to decreased resistance, resembling in this respect the infection with such organisms as the influenza bacillus, pneumococcus, streptococcus, and staphylococcus. The susceptibility of hay-fever patients varies within considerable limits, not only in the degree of the reaction, but also in their reaction to different pollens. In order to determine the influence of heredity in hay-fever, Scheppegrell has analyzed a series of 1,000 cases treated in the hay-fever clinic of the Charity Hospital, New Orleans, and in private practice. This shows that over one-third of the cases (37 per cent.) had relatives of the first degree (father, mother, sister, or brother) who suffered from hay-fever. The exact proportion is probably higher than this, as specific susceptibility may exist indefinitely without developing hay-fever, by reason of insufficient exposure to hay-fever pollens. In this series of 1,000 cases of hay-fever 53 per cent. suffered from asthma during some portion of the season. Although this is a higher ratio than has heretofore been recognized in hay-fever, the probability is that the proportion is still higher. There are many cases in which the nasal symptoms of hay-fever are so mild and of such short duration that the patient recognizes only the asthma from which he is suffering. In addition to this there are also cases of asthma, due to pollen sensitization, in which the nasal symptoms are apparently entirely absent, and therefore its relation to hay-fever is unrecognized. In view of this all cases of asthma, especially those occurring during the usual hay-fever season, should be tested with extracts of the atmospheric pollens to which the patient is exposed. The writer's experience has shown that the number of asthmatic patients giving positive reactions to the pollens, especially the grasses and ragweed, is quite high. This diagnostic test is therefore important, especially in view of the experience that these cases not only respond favorably to the immunizing hay-fever therapy, but that the number of seasonal cures and improvements equals those of the uncomplicated form of hay-fever. In this series of 1,000 cases there were only seven atypical forms of hay-fever and asthma due to the inhalation of dandruff protein of horses and other animals, or to the protein of coffee, flour, and similar materials. However, the possibility of this form of reaction should be borne in mind.

Western Medical Times.

December, 1921, xli, 6.

1. Dermatology vs. General Practitioner. Moses Scholtz.
2. Bacterial Vaccines Are Good Antigens in the Treatment of Bacterins. G. H. Sherman.
3. Relation of Gastric Motility to the Diagnosis and Treatment of Gastro-Duodenal Ulcer. W. H. Foreman.
4. The Polypoid Posterior Tip of the Inferior Turbinate as a Causative Factor in Progressive Deafness. Harold Hays.
5. Ohio's Opinion of the Nurse Anesthetist. Gainor Jennings.
6. Against the Reporting of Venereal Diseases. J. Van Bacalaere.

2. Bacterial Vaccines Are Good Antigens in the Treatment of Bacterins.—G. H. Sherman submits the following argument: That either an acute, subacute, or chronic infection of an organ will impair or suspend its function is perfectly apparent. If the infection is very severe, the function of the organ may be permanently destroyed within a short time, and if life can be sustained without the crippled organ the infection may subside without restoring the function of the organ. A less severe infection may suspend the function of an organ, leaving the organ in such a condition that its function will be restored after the infection is eliminated. If, on the other hand, the infection continues for a long time, the function of the organ may eventually be permanently destroyed, even if the infection is eventually eliminated. From these considerations it is apparent that an infection of the pancreas would suspend its function of secreting the ferment that controls sugar metabolism and thereby establish a diabetic condition, and if this infection continues until this function of the pancreas is destroyed, the diabetes would continue even if the infection should be eliminated. Considering diabetes as due to infection, immune therapy is the most rational procedure. Since the streptococcus and colon bacillus are the most common organisms responsible for infections of the abdominal viscera, with a large percentage of cases in which the staphylococcus and pneumococcus are also present, and since the pancreas, especially that portion which contains the islands of Langerhaus, is inaccessible for bacterial examination, the most rational procedure is to institute immunization against all of these organisms by giving a mixed vaccine which contains these various organs. The writer claims to have demonstrated the correctness of this contention by clinical tests in patients suffering from diabetes. If the vaccine treatment is instituted during the earlier stages of the disease before destructive processes have had time to develop, it is found that sugar rapidly disappears from the urine. The vaccine treatment is harmless and may be employed in conjunction with the routine dietetic treatment of diabetes.

Finska Läkaresällskapets Handlingar.

November-December, 1921, lxiii, 11-12.

Radiation of the Viscera to Hasten the Coagulation of Blood.—Elving has studied the hemostatic action of the *x*-ray on the spleen, liver, and heart. The coagulation time is dated from the appearance of the first shreds of fibrin and the silent interval is calculated by Bürker's method. The daily variations in the healthy are first determined. In some of the cases the spleen was subjected to the *x*-rays, one-third of a skin-unit dose. Of twelve individuals studied, but one showed absence of an accelerating action on coagulation. The maximum acceleration was noted about four hours later, and after eight hours, although still pronounced, it had begun to recede. In a number of cases there was evidence of acceleration as late as twenty-four hours after raying the spleen. The maximum acceleration was about 67 per cent., and in individual cases the time ran from 25 to 40 per cent. The liver was rayed in six cases and the optimum acceleration was seen eight hours later; the maximum acceleration was 43 per cent. and in general about 20 per cent. Raying of the heart produced accelerations as high as 31 per cent., with a mean of 16 per cent. From the therapeutic angle the spleen was rayed during actual hemorrhages but with inconstant results. A much more decisive action followed prophylactic raying before operation. Of numerous other hemostatics tested in connection with their action on the coagulation time of blood the best results were obtained with calcium chloride in intravenous injection.

Book Reviews.

VETERINARY HYGIENE. By R. G. LINTON, M.Q.C.V.S., Professor of Hygiene, Royal (Dick) Veterinary College, Edinburgh. The Edinburgh Veterinary Series. Price, $6. New York: William Wood & Company, 1921.

THE seven sections of this volume are devoted successively to water supply, meteorology, sanitation, air and ventilation, building construction, preventive medicine, and sanitary law. The animals under consideration are cattle, pigs, horses, sheep, dogs, cats, rabbits, and poultry. The specific and transmissible diseases and insect transmitters naturally receive due attention. A work like this, which parallels the subject of human hygiene and often overlaps it should prove of value for the medical practitioner as well as the veterinarian.

ARTERIAL SCLEROSIS, A Consideration of the Prolongation of Life and Efficiency after Forty. By LOUIS FAUGÈRES BISHOP, M.A., M.D., Sc.D., F.A.C.P., Professor of the Heart and Circulatory Diseases, Fordham University School of Medicine, New York City; President of the Good Samaritan Dispensary; Physician to the Lincoln Hospital; Chairman of the Section of Historical Medicine of the New York Academy of Medicine; Member of the American Medical Association, of the Medical Veterans of the World War, of the American Therapeutic Society, of the New York Pathological Society, of the Society for the Prevention and Relief of Heart Disease, and of the Alumni Association, St. Luke's Hospital; Author of "Heart Troubles; Their Prevention and Relief." New York: The Oxford University Press, American Branch, 1921.

IT is gratifying to find that a new issue of this excellent work is called for. Dr. Bishop was, we believe, the first to recognize the influence of protein idiosyncrasy in the causation of cardiovascular disease. Since the first edition of this book was printed, the method of testing for protein idiosyncrasy has been developed but it is practically impossible to test every protein that enters into man's diet, so that the author's injunction to cut out all meat and eggs, and even fish, remains sound, and should be followed if one would be on the safe side. The book is most readable and is full of practical suggestions; especially useful are the chapters on The Riddle of Arteriosclerosis, The Treatment of Arteriosclerosis, and The Prevention of Arteriosclerosis, but the whole book is valuable and will well repay study.

AIDS TO MEDICINE. By BERNHARD HUDSON, M.D., Camb., M.R.C.P., Lond., Swiss Federal Diploma; Physician in Charge of the English Sanatorium at Montana, Switzerland; Visiting Physician to the Queen Alexandra Sanatorium at Davos; formerly Assistant Physician to the City Road Chest Hospital, and Pathologist and Registrar to the East London Children's Hospital. Third Edition. Price, $2.00. New York: William Wood & Co., 1921.

THE writer makes it clear in the preface that it is not his intention that this book shall serve as a substitute for the many excellent textbooks on medicine. His object is to supply the student with a book for revision purposes of a convenient size to carry about. In this he has succeeded admirably, for in the space of 360 odd pages he gives a succinct outline of the practice of medicine which the student will find most helpful in crystallizing his knowledge. In this edition the subject matter has been brought up to date, affections brought into prominence during the late war are briefly described, and a new chapter on the more common skin diseases has been added.

BACTERIOLOGY. For Students in General and Household Science. By ESTELLE D. BUCHANAN, M.S., recently Assistant Professor of Botany, Iowa State College, and ROBERT EARLE BUCHANAN, Ph.D., Professor of Bacteriology, Iowa State College, and Bacteriologist of the Iowa Agricultural Experiment Station. Revised Edition. New York: The Macmillan Company, 1921.

THIS text-book, first published in 1912, for students in general and household science, has been revised and portions have been completely rewritten to bring it in line with the revised scheme of classification of the names of bacteria recently formulated by the Committee on Nomenclature of the Society of American Bacteriologists. In the present edition the topic of food preservation has been elaborated and increased emphasis has been put upon panary and acid fermentations. The text meets in a fair way the needs of students in non-technical courses. It does not supply the detail of laboratory technique required by the medical student.

THE LIFE AND TIMES OF AMBROISE PARÉ, with a New Translation of His Apology and an Account of His Journeys in Divers Places. By FRANCIS R. PACKARD, Editor of the Annals of Medical History. Price, $7.50. New York: Paul B. Hoeber.

THIS is a most attractive volume both from the literary standpoint and from that of the printer's art. There are among the 22 text illustrations and 27 full page plates, many excellent reproductions of illustrations from Paré's original text and from portraits of his times. In addition there are two folded maps of the 16th and 17th centuries. The first part of the volume is concerned with the historical setting in which Paré passed his life. This was a most interesting period in the history of France, one of cruel civil and religious wars and expensive foreign wars. These conditions furnished the opportunity for the development of one of the most remarkable figures in the history of medicine, and a man who also played no mean part in the social, military and political life of his country. He was surgeon successively to Henri II, François II, Charles IX, and Henri III. He was held in such high esteem that though he was probably a Protestant in his sympathies, his life was spared during the Massacre of St. Bartholomew, when the order was sent forth to spare no Protestant.

The second part of the book consists in a translation of "The Apology and Treatise containing Voyages into Divers Places." In this the author has made an effort to translate as literally as possible the old French in which Paré wrote, the French of Rabelais and Montaigne, with whom Paré was probably acquainted. While we may smile at many of the strange concoctions upon which the therapeutic faith of those days was pinned, there were many matters upon which Paré displayed a most remarkable insight. For instance, after describing the horrors of a battlefield, he writes that swarms of flies procreated in the dead bodies and expresses the belief that where they settled they carried plague and caused pestilence. This is undoubtedly the most readable translation of Paré's Apology that has yet been printed. The book is one that will delight anyone interested in the history of medicine or in this period of French history.

DISEASES OF THE NERVOUS SYSTEM. By H. CAMPBELL THOMSON, M.D., (Lond.), F.R.C.P., Physician to the Department for Diseases of the Nervous System, and Lecturer on Neurology, Middlesex Hospital; Physician to the Hospital for Epilepsy and Paralysis, Maida Vale; formerly Dean of the Middlesex Hospital Medical School. Third Edition, Revised. With 11 Color and 12 Black-and-White Plates and 120 Figures in the Text. Price, $5.00. New York: Paul B. Hoeber, 1921.

THE student of medicine and the young practitioner are apt to find that diseases of the nervous system present unusual difficulties. Writers of textbooks are likely to overlook or to underrate these difficulties, with the inevitable result that the recent graduate generally knows less of nervous diseases than he does of (say) diseases of the digestive or circulatory system. The present volume is a useful introduction, with ample explanation of the anatomical relations, and with due attention to the difficulties ordinarily met with in this branch of medicine. In this new edition there is a chapter on Encephalitis lethargica; the relation between the neuroses and the internal secretions has been emphasized, and new material has been inserted in the sections on injuries to the spinal cord, aphasia, and the autonomic nervous system. The book is clearly written and well printed; it is very readable, is unusually well illustrated, and should prove popular with the class of reader for whom it is intended.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held January 5, 1922.

THE PRESIDENT, DR. GEORGE DAVID STEWART, IN THE CHAIR.

The Radiograph in the Diagnosis of Brain Conditions. Ventriculography.—Dr. WALTER DANDY of Baltimore gave this presentation, which consisted in a lantern slide demonstration. He said that, as was well known, the only shadows shown in a radiograph were those due to differences in tissue density. In an *x*-ray of the head the only shadows were those of the bones of the skull. If, however, the cerebrospinal fluid was removed from the cranial channels and air was introduced into the lateral ventricles, the entire ventricular system could be filled with air and one could get well-defined shadows on an *x*-ray plate showing the conformation of the ventricular system. By this means deviations from the normal shadow of the size, shape, or position of any or all of the ventricles and of the subarachnoid space could be demonstrated. This procedure had proved itself useful in the localization of brain tumors, the demonstration of all types of hydrocephalus, and the detection of abnormalities that might be the cause of epilepsy. By far the greatest field of usefulness of ventriculography was in the localization of brain tumors. The limitations of neurological signs in the localization of brain tumors was well known. Up to the present time it had been impossible to localize more than one-half of all brain tumors by the neurological signs, whereas with experience in the technique of this procedure and care in the interpretation of *x*-ray plates few tumors would escape accurate localization. There was only one form of treatment for brain tumors, namely, operative extirpation. To obtain the best results brain tumors must be diagnosed and localized in the earliest stages. Gliomata arising very deeply in the brain or in vital parts of the brain must still be looked upon as hopeless, but the vast silent areas harbored most of the incipient brain tumors and from these regions could be removed with impunity. The operative approach would be dictated by the precise location. Decompressions, routinely performed, were among the most harmful and indefensible operations in surgery. They should never be performed for unlocalizable tumors. They were the exact equivalent of giving morphine for abdominal pain; the symptoms were masked until it was too late. Decompressions should be performed only as a last resort—when the tumor could not be removed; and then only after the localization of the tumor was known. Exploratory craniotomies for brain tumors were now scarcely ever indicated. Early and accurate localization and thorough operative treatment would eliminate all unnecessary and harmful operations. Ventriculography would differentiate between cerebral and cerebellar lesions, which was frequently one of the most difficult tasks in intracranial localization. Many useless and harmful operations would be spared the patient by a judicious use of ventriculography. A number of slides were shown with entirely different findings which served to demonstrate the range of usefulness of this procedure when tumors of the cerebral hemisphere were suspected. Ventriculography would also serve to exclude a cerebral tumor when the lesion was situated elsewhere. The physician should learn to detect early symptoms and signs of intracranial pressure, as well as the local manifestations. It was due the patient that headaches or pains in the head, unexplainable vomiting, unusual malaise, visual disturbances—dimness of vision, hemianopsia, diplopia, transient amblyopia—any focal, motor, or sensory disturbances and all unusual epileptic attacks, disturbances in the gait, etc., should be thoroughly investigated by one of adequate experience to pass on the intracranial possibilities in a decisive manner.

Biological Determination of X-Ray Dosage.—Dr. FRANCIS CARTER WOOD made this contribution. (See page 399.)

Effects of X-Rays on Inherited Characteristics.—JAMES W. MAVOR, Ph.D., Professor of Biology of Union College, made this presentation, which was illustrated by lantern slides. He stated that the experiments he would describe were carried out on certain varieties of fruit lice and on red-eyed and white-eyed flies to determine the effect on inherited characteristics of exposure to *x*-rays for varying periods of time. In these experiments a 50 milliampere current passed through a water-cooled tube was employed; no filter was interposed, the whole spectrum being allowed to act. They had first determined the lethal dose of *x*-rays for flies in the various stages of their existence—egg, pupa, larva—and the quantity of *x*-ray required to sterilize a fly. In order to study the effect of the *x*-ray on chromosomes they had selected red-eyed and white-eyed flies. They first studied the inheritance of red eyes and white eyes in numerous matings of red-eyed and white-eyed flies and found that the transmission of this characteristic followed the Mendelian law. They then studied the genealogies of red-eyed and white-eyed flies that had been exposed to the *x*-rays for various periods of time. The study brought out the fact that the *x*-ray used in a particular way on certain germ cells exerted a definite influence on the behavior of the chromosomes.

An Appraisal of the Newer Methods of Deep Roentgen Therapy.—Dr. JAMES T. CASE of Battle Creek, Mich., made this contribution to the program. He said he was neither a physiologist nor a biologist, but a clinical man recognizing the need of somethng to aid surgery in dealing with various pathological conditions, particularly malignancy. His remarks would deal chiefly with the use of the *x*-ray in deep-seated disease. For the treatment of deep-seated lesions one needed first a generating apparatus that would send 200,000 volts or more through the vacuum tube. With this apparatus, long distance radiation and the employment of larger fields more could be accomplished in the treatment of deep-seated lesions than had heretofore been possible. There was little to be gained by the use of copper or zinc filters less than ½ to 1 mm. in thickness; heavy filters were essential for the delivery of these highly penetrating rays to the parts to be treated. After describing the Dessauer apparatus and the work being done by Opitz and Friedrich and by Seitz and Wintz, Dr. Case stated that the results thus far obtained with the new high power *x*-ray machines warranted a certain amount of enthusiasm and in fact were decidedly optimistic. The value of single massive doses had been demonstrated. It was now an axiom that the harder the ray the more intense the radiation and the less danger of skin damage. No changes in the blood had been noticed as a result of treatment with these large doses of *x*-ray. There was sometimes a drop in the hemoglobin, but it soon returned to normal. Occasionally temporary intestinal disturbances might occur. It was generally believed that excision of small pieces of tumors encouraged metastases, but it had been shown that *x*-ray in efficient dosage did not increase metastasis. Insufficient dosage might actually stimulate disease. The German investigators had calculated the dosage for different types of growth with a fair degree of accuracy. Carcinoma required from 100 to 120 per cent. of the erythema skin dose; sarcoma did not require as large a dose of *x*-ray as carcinoma, about 60 per cent. of the skin dose. Large myomas required 50 to 60 per cent. of the skin dose. Statistics published by the foreign workers seemed to be very encouraging. Seitz no longer operated on uterine sarcoma, no matter how early, but cervical growths were still operated on with carefully planned pre- and postoperative radiation. Personally, the position he took was that operable growths should have the advantage of surgery supplemented by suitable pre- and postoperative radiation. Perhaps one had no right to talk of the results of intensive radiation as yet, but one certainly was justified in feeling encouraged. If the good results were not permanent they were much superior in a palliative way to any measures we had hitherto had at our disposal.

Dr. JOHN S. SHEARER, Professor of Physics, Cornell University, discussed the *x*-ray from the physical standpoint. He said he was interested in Dr. Wood's remarks, especially in regard to the physics of the *x*-ray, which reflected views that he largely could not accept. In the first place, no well-informed physicist would now assert that the quantity of radiation was

fixed by the current through the tube. That idea had been exploded, but the report of the changed views had not yet permeated all quarters, and we still noted dosages published in milliampere minutes, a terminology entirely meaningless unless the tube voltage was specified. As one increased the voltage with the same current there was an increase in the *amount* of radiation at least in proportion to the square of the voltage. For instance, if one were using 5 milliamperes at 50 kilovolts and increased the kilovolts to 100, the result would be four times as much *x*-ray. The voltage completely determined the quality of radiation. Hull had shown the difference between the amount of radiation with the sine wave and with a constant voltage of 70 kilovolts. It required 3 milliamperes with the sine wave to deliver the same amount of radiation as given 2 milliamperes with the continuous voltage. The measurement of the output and of its quality in electrical terms was quite possible and would be much more reliable than methods now in use. There had been a great deal of discussion of physical laws by people who had had inadequate experience in those laws. For example, the inverse square law has been called in question. It has been stated that the inverse square law did not apply to filtered radiation. There was every reason to believe that the inverse square law held rigidly and was not to be cast aside by any superficial biological observations. Dr. Shearer said he did not know anything about standardized tumor reactions, nor did he know how the biologists determined just when a tumor died, therefore he did not know just how accurately biological cells could be standardized with respect to radiation, though he thought a great deal might depend on the nature of the tumor and upon the previous condition of the patient. Another point to which attention was called was the erythema dose. Personally he believed that the erythema dose produced by one wave length was not equivalent to one produced by another wave length. One could use a ray so soft that 90 per cent. would be absorbed in one millimeter of skin and the effect would be quite different from that resulting from the use of more penetrating radiation. If one took a series of "erythema doses," so-called, not only would the time of appearance vary, but in the subsequent history there would be a great deal of variation because the distribution of absorption and action on deep tissues would be entirely different. Without asserting that the physicists would solve all the problems of radiotherapy, Professor Shearer said he would emphasize that the advances made by the German and French roentgenologists had been made on the basis of sound and rational physics. Their work showed a knowledge of physics of high order. They had moved the target further from the skin in order to get better distribution, and had taken account of scattering in utilizing larger ports of entry. The limit of radiation was the limit of skin tolerance, so as much must pass through the skin as possible. If you increased the portal of entry of the radiation you increased the amount of radiation absorbed because more was delivered. If you delivered the radiation through a 1-inch opening and doubled the linear size of the opening, you increased the amount of radiation fourfold, and the total absorption had been increased thereby. He was inclined to think that the introduction of ionization methods as a routine in laboratories would not greatly improve results. For the past fifteen or eighteen years he had been trying to teach others to use the ionization apparatus and had found that there were many uncertain factors that must be taken into consideration. He therefore believed that the time would come when the apparatus delivering the radiation would be standardized. Then it would not be necessary to worry about the variation in wave form. He thought the time would come when it would not be necessary to carry out complicated measurements of radiation any more than it was necessary now to carry a photometer in order to see if one had the correct amount of light to read by. The time was probably not far off when we should know the quality and quantity of radiation, how it was distributed and dosage might be determined from a simple chart. Dr. Shearer said he had been asked to say a word or two on the subject of apparatus. His impression today was that we did not need to import apparatus for deep therapy unless one wished to do it because it was fashionable to have the imported equipment. He felt confident that apparatus could be built in this country superior to anything he had seen in connection with the German apparatus. Furthermore, he felt that by modification and simplification of apparatus floor space might be economized and more efficiently used than was being done at the present time. It would be extremely desirable if apparatus could be made which would take care of more patients in a given time than is being done at present. Professor Shearer said he had no arguments in favor of measuring the dosage exclusively by means of biological, physical, or chemical action, but he did not like to have the physical methods cast aside until they were properly understood and applied, because he thought that by the application of physical principles the apparatus could be rendered safe and sane. He favored simplification of the apparatus, for if the apparatus was complicated the roentgenologist had to spend too much time in the study of technique which could be more advantageously spent in the study of the patient. In the clinics abroad they had devoted a great deal of time to careful physical diagnosis.

Dr. L. T. LE WALD said that as the hour was late he would omit all detailed discussion, interesting as each of the subjects had been. A number of men had asked him to ask Dr. Dandy to give them more information with reference to the technique of ventriculography, to say something about the amount of air injected and whether the injection was followed by shock or other untoward results, and whether with air injection he had been enabled always to obtain accurate information of diagnostic value. Dr. Wood had made his tests very accurate as to the effect of the *x*-rays on animal tumors. He would like to know whether they were applicable to human beings and whether the dosage of various types of human tumors had been worked out to his satisfaction. He hoped Professor Mavor would tell them whether his observations might lead to some practical application to human beings. As to the question of the necessity of importing apparatus, that had been asked again and again. He was glad Dr. Shearer had answered it so definitely that there was no necessity of importing apparatus. Dr. Case had answered the question in the affirmative as to the use of the *x*-ray in operable cases. The question as to the adequate protection of those who gave the treatments had also been asked, and how this problem had been met. In closing Dr. Le Wald said the audience owed a great debt of gratitude to the speakers, some of whom had come long distances to give their personal experiences on these subjects.

Dr. WALTER DANDY, in reply to the questions propounded by Dr. Le Wald, said that the amount of air injected into the brain was exactly equivalent to the amount of fluid removed; any more than that was very dangerous. The entire procedure was very dangerous and should be employed only when something worth while was to be determined. The danger came not only at once, but during the twenty-four hours following the injection. The intracranial pressure caused by the air acted as an irritant and excited an increased secretion of cerebrospinal fluid which it was sometimes necessary to remove in order to avoid serious consequences.

Dr. WOOD, replying to Dr. Le Wald's question as to whether the *x*-ray dosage in animal tumors was applicable to human beings, stated that these animal tumors on the average required about the same amount of *x*-ray as a primary human tumor, say of the breast. Dr. Wood said he was much obliged to Professor Shearer for pointing out that his knowledge of physics was about as deficient as was Dr. Shearer's knowledge of biology. However, Dr. Shearer had misunderstood him. He had not said that he thought the quantity of *x*-ray was necessarily wholly determined by the voltage and the current through the tube, but had, on the contrary, pointed out that this conception was incorrect.

Dr. MAVOR said he understood Dr. Le Wald's question as to whether his investigations had an application to the human inheritance as a joke. The importance of the finding lay in the discovery that the chromosomes were affected by the *x*-ray; that the *x*-ray affected the cell in a very delicate way and yet the cell lived indefinitely. The dosage of *x*-ray was probably very dif-

ferent in insects from that in the human being. Insects were extremely resistant to the action of the *x*-rays. It required hours of exposure to the *x*-ray at the closest distance to kill certain insects.

Dr. CASE, in closing the discussion, said his views coincided entirely with those expressed by Dr. Shearer in regard to the relative value of the domestic and foreign *x*-ray apparatus. Personally, he was equipped with a superior American *x*-ray apparatus and liked it. The Germans were very skeptical about our apparatus, and doubted that we could do all we claimed to do. Dr. Shearer's remarks about the size of the apparatus and the amount of floor space it occupied were quite true. It was to be hoped that the apparatus would be modified so that it could be used to better advantage. As to protection against the *x*-rays, the patients were thoroughly protected as the tube was enclosed in lead except for the aperture in the top permitting local application. A very good quality of leaded rubber was now being made which afforded additional protection to the patient. However, occasional accidents occurred. It was necessary to be very careful to protect the patient against *x*-ray burns, inasmuch as the compensation laws held the physician to account for them. As to the protection of the person who administered the *x*-ray treatment, he was in an adjoining room, separated from the treatment room by a leaded wall.

SECTION ON PEDIATRICS.

Stated Meeting, Held November 10, 1921.

DR. MARSHALL C. PEASE IN THE CHAIR.

X-Ray Demonstration of Rudimentary Development of Both Arms, with Lacking Elbow Joints.—Dr. CHARLES WINFIELD PERKINS gave this demonstration. He stated that the first illustrations were from a case that came to the Seaside Hospital, a young boy about 12 years of age, with rudimentary arms. He was otherwise perfectly developed and his mental condition was bright. With these two rudimentary arms the boy was able to dress himself, put on his shoes and with the right hand he was able to write his name. The radiographs showed that there were no elbows and only a rudimentary radius and ulna on the left side and rudimentary fingers. The left arm was smaller than the right. From the shoulder to the wrist there was but one bone with the effort at the development of a radius and ulna. On the right side there was but one bone from the shoulder to the wrist. An operation was undertaken at one time with the object of making an artificial elbow joint, and although there was no joint there was a little bend to the arm which gave the boy better function than though the bone was perfectly straight. On the right side there was fusion between two of the metacarpal bones, and on the right side two rudimentary metacarpal and phalangeal bones.

X-Ray Demonstration of Congenital Malformation of the Heart in an Infant of Three Months.—Dr. CHARLES WINFIELD PERKINS presented illustrations of the chests of children from nine years of age down, showing the normal position and size of the heart at different ages. These were taken at a distance of six feet from the tube. He also presented a diagram superimposed over a roentgenograph of a normal heart and chest of 9 years, showing the size of the heart, its position and the location of the valves. He stated that in the young children under 4 years the heart was more globular in shape and its base wider than in older children. In making radiographs of the chests and hearts of children it was essential that the child be absolutely parallel with the plate or there would be an enlargement at the base of the heart due to the oblique position of patient which would mislead one into suspecting a thymic condition. The radiograph of the congenital malformation of the heart which Dr. Perkins exhibited was that of a case referred to him by Dr. Graves, who had been called in on the case when the child was two months old. The child gave a history of choking and dyspnea from the age of two weeks continuously onward. A number of men of ability who saw the case were of the opinion that it was very suspicious of thymic enlargement. At first no signs could be elicited of any abnormality of the heart by auscultation or percussion. The child, however, was cyanosed and blue. Two days before the radiograph was taken there were signs of beginning bronchopneumonia in the right upper lobe. The *x*-ray plate showed enlarged right auricle and enlarged left ventricle and a globular heart. The thymus was not enlarged as suspected. The infant died three days after the radiograph was taken of suffocation more or less gradual in culmination probably associated with bronchopneumonia. No autopsy could be obtained. The diagnosis was congenital malformation of heart associated with probable bronchopneumonia. Dr. Perkins showed another radiograph of the chest of a child two days old suspected of having thymic enlargement. There was an enlarged heart but no abnormal thymic condition. This baby also died on the following day.

Dr. GAYLORD W. GRAVES stated that the infant with the normal heart had had a crowing type of respiration for a number of weeks. It was thought the case was one of congenital stridor, socalled Thomson's Disease. That child was doing well. The other patient with the globular heart showing dilatation had presented no ordinary physical signs of congenital heart disease. It had been the consensus of opinion of three physicians that this case was one of enlarged thymus gland. The respiration reminded one of that of a child suffering with laryngeal obstruction, as in laryngeal diphtheria, and was characterized by retraction of the intercostal spaces. The respirations which were ordinarily about fifty, at times became more rapid. There were repeated attacks of impending suffocation and seizures a little like convulsions. Several times the mother found the baby in a state of almost complete asphyxia and applied mechanical measures to effect restoration. The auscultatory signs were those of bronchitis; there was no cardiac murmur. The *x*-ray revealed the congenital cardiac malformation which would hardly have been detected by percussion and was not suggested on listening with stethoscope even after the *x*-ray examination. Unfortunately there had been no autopsy. Congenital malformation of the heart without murmur was a comparatively common condition. Absence of congenital murmur had been explained at times by complete pulmonary atresia. In view of the fact that symptoms of congenital malformation of the heart and those of the thymic enlargement were thus sometimes similar, it would be wise to take more *x*-rays of infants in both the antero-posterior and lateral positions. Especially in cases of urgent dyspnea and asphyxia, if there were malformations of the heart, the *x*-ray might afford the explanation of the condition. Dr. Graves said it was a revelation to him that a congenital heart case could give such a clear clinical picture of thymus enlargement.

The Diagnosis of Peritonitis and Peritoneal Exudates by Means of Abdominal Puncture with Capillary Tube.—Dr. BERNARD S. DENZER presented this communication, in which he stated that the difficulties surrounding the diagnosis of peritonitis in infants had been universally recognized. The signs of peritonitis so striking in the adult were vague and misleading in the infant; pain, localized distension and paralytic ileus were either absent or difficult to elicit, and even when present might be ascribed to some gastrointestinal disturbance of which they were also characteristic. Finally, the fact that peritonitis in infancy occurred so often without an intraabdominal focus, was part of a general infection, or was of so-called primary type, rendered its diagnosis particularly uncertain. The perfection of the usual methods of clinical examination of the abdomen held out little hope of more accurate diagnosis and the effort was therefore made to find some objective or instrumental procedure that would demonstrate minute amounts of peritoneal fluid. The technique for obtaining samples of peritoneal fluid from laboratory animals by inserting a capillary tube into the abdominal cavity suggested the procedure finally adopted. A metal trocar cannula was made ½ inch long and about 17 gauge bore. Glass tubing was drawn out, inserted through the shaft of the cannula and cut off so as to protrude 1 or 2 mm. from the tip of the cannula. The purpose of this technique was to prevent the breaking of the capillary tube within the peritoneal cavity. The capillary tube impinged on the wall of the cannula at such a point that after the tubing was safely inserted into the cannula, a break, if it occurred

at all, would take place at or above this point, and the lower fragment fixed in the shaft would be withdrawn with the cannula. The performance of the puncture was simple. The trocar cannula was inserted through the abdominal wall and the sudden release of pressure indicated that the peritoneal cavity had been entered. The trocar was removed and the capillary tube inserted as far as it would go. It was advisable to wait a few moments and to turn the tube in various directions before concluding that there was no fluid. Any place in the abdomen except the parts covered by a solid viscus or one attached by a short mesentery might be used. Over 100 taps had been done and no untoward incident had occurred. This method would demonstrate fluid in the peritoneal cavity not only when there was a large ascites but would also demonstrate small amounts. One interesting phase of the subject was illustrated by the case of a marantic infant with no signs of peritonitis. An abdominal tap was done merely because this procedure had been adopted in all acutely ill cases in which the diagnosis had been in doubt. The abdominal puncture in this case revealed a milky fluid. This showed on smear gram positive cocci in chains. The baby died the following day and autopsy revealed a diffuse purulent peritonitis. No focus of infection or portal of entry could be found. This case typified peritonitis in infancy. Such infants showed the signs of marasmus only, and there was nothing in either the history or examination to direct attention to the abdomen. Two other cases were cited to illustrate the initial reaction of the peritoneum to inflammation and that abdominal puncture demonstrated an extremely small amount of fluid. The therapy of peritonitis in these young and delicate infants would probably remain far from satisfactory; however, adequate therapy depended upon prompt recognition of the disease and the procedure described raised the hope of early diagnosis. In marasmus and rickets abdominal puncture had developed unexpected results. Twelve marantic infants were tapped and in seven of them ascites was demonstrated. As a rule the fluid was clear and at most contained 1700 cells. The cellular elements were chiefly lymphocytic. There was every reason to believe that the amount of fluid was small and speculation as to the rôle that this ascites played in the picture of marasmus would lead him too far afield. For the moment he would content himself with recording the fact that in a certain percentage of marantic infants free fluid might be found in the peritoneal cavity. In five of twelve cases of rickets a fluid was demonstrated similar in appearance and cellular content to that found in marasmus. Here, too, the ascites was probably small. The occurrence of pot-belly in most of the cases that showed free fluid suggested that the mechanical and circulatory derangements incident to the large abdomen were probably responsible for the ascites. However, this was merely an impression and would need confirmation. Dr. Denzer also referred to some work of Dr. Anderson and himself on the absorption of fluid injected into the peritoneal cavity, the striking feature of which was that they could now follow with ease and safety and accuracy the response of the peritoneum to a foreign substance. To illustrate this the following case was cited. In a malnourished, dehydrated infant, three weeks of age, an intraperitoneal injection was indicated. The preliminary tap before the injection of saline was dry. Then 150 c.c. of Ringer's solution was injected. The abdomen was tapped, 3, 6, 12, and 24 hours after the injection. At the first tap the fluid was sticky, thick and mucoid like in the early cases of peritonitis described. In some of the smears from similar cases made within six hours of the injection, Dr. Anderson found large endothelial cells with ameboid movement, probably the macrophages of Metchnikoff, which Adami considered characteristic of early inflammatory reaction. In this way the course of this sterile chemical inflammation was traced just as one followed by serial blood counts the reaction of the blood to infection. The results presented in this paper merely represented the essential proposition and emphasized the way in which a new method revealed new problems or new avenues of approach to old ones. The peritoneal response to injury could now be followed with safety and with a degree of faith in the significance of the findings similar to that we had learned to place in lumbar puncture. Of course, it would be necessary to establish the limitations of this procedure, and to arrive at its final evaluation would require the experience of many men and varied material.

Dr. HAROLD NEUHOF said the question of abdominal puncture, as Dr. Denzer had pointed out, was not new. A number of years ago it had been shown that the abdominal cavity could be punctured for diagnostic purposes. Dr. Denzer, however, had shown in a brilliant way some of the possibilities of abdominal puncture. The method he employed was one which was entirely satisfactory in his hands. Personally, Dr. Neuhof said he had had no experience with Dr. Denzer's technique, but during the past two years he had been employing abdominal aspiration, in conjunction with Dr. Ira Cohen, more frequently in adults than in children, for diagnostic purposes. They had been using a lumbar puncture needle and withdrawing with an aspirating syringe any peritoneal fluid that might exist. This method had proved safe in their hands. Various points on the abdominal wall might be chosen for puncture, all but that over the course of the epigastric vessels being safe. By making a minute incision through the skin the sense of touch, which was the guide to the entrance into the peritoneal cavity, was best preserved. Further technical details would be out of place. The point was that there was no danger of injury to a loop of intestine unless the gut was fixed. In one case in which it was necessary to introduce fluids into the jejunum at a laparotomy he found that it was impossible to pass a lumbar puncture needle into the lumen unless the gut was fixed. If the method he was using was entirely safe certainly the one employed by Dr. Denzer should prove free from danger. Dr. Denzer mentioned that the diagnosis of tuberculosis peritonitis might be established at a relatively early stage before ascites had become marked. It was in just such conditions as peritonitis that there might be contraindications to puncture as there was more likely to be fixation of a loop of intestine and under those circumstances one might enter a loop of intestine; the same was true in the presence of a mass in the abdomen, unless one made the puncture far away from the mass. As to the value of abdominal puncture in the diagnosis of peritonitis they had had some very remarkable results, and had learned that even small quantities of fluid might be withdrawn by aspiration. The observations were substantiated by his operative findings. In his experience with the aspiration method in some 40 cases only one was negative by this method, in which fluid was found at operation, and he believed that if Dr. Denzer's method had been employed fluid would have been found in that case as well. It seemed to him that Dr. Denzer's method was applicable to adults as well as to infants and children. One group of cases in which the diagnosis was established and operation avoided by abdominal puncture was that of pneumococcus peritonitis. In several cases they had been able to diagnose pneumococcus infection; one was then enabled to determine the type of pneumococcus and to employ serum therapy. In a number of cases in which peritonitis was merely suspected it was definitely revealed by aspiration. In traumatic cases they had found aspiration of considerable value. In one child, for instance, a condition was revealed by aspiration which had scarcely been suspected. The child was struck by an automobile in the left lower chest and was in slight shock. There was slight rigidity of the left upper abdominal wall, and some acceleration of the pulse. A diagnosis of an abdominal condition was entertained but the actual lesion was not suspected. By aspiration fresh blood was withdrawn, and at operation a ruptured spleen was found. Unquestionably Dr. Denzer's method, as he had presented it, was a real contribution to the study of peritonitis in childhood.

Dr. HENRY HEIMAN stated that this method of abdominal puncture had been adopted during the war. Dr. Lilienthal, after his return to Mt. Sinai Hospital, advised the use of this method. They had had occasion to use the method on four of their cases, and in every one they had been able to establish the diagnosis of pneumococcus peritonitis. However, they had not employed the capillary method but had simply employed the smallest caliber hypodermic needle attached to the

aspirating syringe. The point of entrance advocated by Dr. Lilienthal was one inch below and one inch to the left of the umbilicus. This avoided the attachments of the liver and it avoided puncturing the small intestines. The danger of puncturing the intestine was small, but it had occurred in one case not yet published. In the smear were found a number of bacteria, but the child made a good recovery. It was not a pneumococcus case and there was no ruptured appendix. It was interesting to be able to type the pneumococcus in nine cases. It was type I in five cases, type II in but one case, type III in no cases, and type IV in three cases. The method employed by Dr. Denzer was a distinct advance, and he saw no reason why it should not be employed instead of the needle and aspirator.

Dr. LEON T. LEWALD asked if this device could not be employed to introduce air or carbon dioxide into the peritoneal cavity if it became necessary to clear up a question of adhesions or of a mass. By the introduction of gas and an *x*-ray examination Dr. Denzer's device might be a diagnostic help from the *x*-ray standpoint as well as in the extraction of fluid from the peritoneal cavity. It seemed to him that *x*-ray examination might be combined with the removal of fluid while the tube was in place.

Dr. DENZER, in closing the discussion, said he wished to show the type of needle Dr. Anderson and he had used in infants requiring intra-peritoneal injections. This needle had an attachment in its shoulder permitting the insertion of a Luer syringe or a Luer adapter. They first tapped the mid-line of the abdomen, inserted the capillary tube and after seeing that the peritoneal cavity was dry, attached a Luer adapter and proceeded with the injection of saline. This would permit a comparison of the method with the capillary tube and that of aspiration, which Dr. Neuhof had suggested. At present Dr. Denzer did not feel capable of passing judgment on the comparative values of the two methods. At the Nursery and Childs Hospital, where the cases were obtained, the service was rich in medical material, but the surgical cases were scant, and it took almost two years to collect these six cases. Stimulated by Dr. Neuhof's experience, aspiration was tried in several cases. In two blood was obtained and the method was discontinued. This should not militate against the method, particularly as one of the cases belonged to the group in which the transudate had been produced artificially. The needle presented would permit the introduction of air or carbon dioxide at the same time that the test with the capillary tube was being made. Dr. Heiman had brought up the question of the needle entering the peritoneal cavity. If a needle of ⅛ wide bore was used this would not happen. At the autopsy table the effort had been made to enter the intestine, and in order to do so, it was found necessary to hold the gut firmly and to use considerable force. It was difficult to imagine the free gut permitting the entrance of the needle, providing the needle was of sufficiently large bore. Dr. Denzer said that he did not wish to give the impression that abdominal puncture was a new method, but that the use of a capillary tube was a new modification of it. They had used the capillary tube because they felt that aspiration must have been tried and to a certain extent discarded and because the capillary tube seemed safer. However, it would require a great deal more work before the real worth of the method was established.

The Late Treatment of Chorea as a Problem of Convalescence.—Dr. GEORGE R. IRVING read this paper, which was based on records of 123 of the younger patients treated for chorea at the Burke Foundation. After reviewing the characteristics of this ailment he stated that recently there was a decided tendency to stress the details of the treatment other than by medicine. Most authors agreed that rest was one of the prime factors in the management, some insisting that this be carried out under conditions of absolute isolation, while others allowed mild physical activities with restricted attendance in the matter of visitors. There was, however, increasing importance being attached to a type of restriction, brought about by country or seashore convalescence, avoiding only the more violent exercises, and at the same time instituting such general strengthening measures as might tend to lessen recurrence or minimize the danger due to existent or possible cardiac and rheumatic conditions. This had stimulated considerable discussion as to the advisability of a somewhat more active regime for the choreic patient, particularly in the convalescent stage, and had prompted the present review of the Burke Foundation's policy in the matter. Only the accepted straight types of chorea were admitted, and the only characteristics insisted upon were that the children should be able to walk fairly well and should be able to feed themselves at the table, although often with considerable difficulty. The age of the 123 patients ranged from 9 to 16 years. There were almost four times as many boys as girls, a reversal of the accepted sex incidence in chorea, due to the Foundation having made special provision for the much-needed accommodation of the generally neglected boys at the Sunny Brae branch. The tables showed that there were almost again as many children admitted from May until November as from November until May. Among this group of patients 39.8 per cent. presented cardiac complications of various types and grades. There were only two children in the group who had rheumatism as a complication. This might be explained by the high degree of care given these patients before their admission to the Foundation—the early and acute stage treatment and the efforts made to eliminate possible foci of infection. The average residence in the institution was 33.8 days, varying with the condition on admission, a satisfactory improvement at the end of a given period of time, the ability to resume school, and the anticipated co-operation of patient, parent and the referring agency in the matter of follow-up. Almost no drugs were used excepting in incidental conditions requiring medication. The diet was one with low protein content, but well balanced, satisfying in amount and in the manner of service. Talks were given by the resident physician from time to time to explain the methods of, and to urge the entrance into the routine. Dr. Irving outlined the detail of this routine and stated that under it 115 of the 123 children gained an average of 3.86 pounds per child. Only eight children failed to gain. The following conclusions were drawn: (1) Supervised activity in the later treatment of chorea, in this series, did not lengthen the course of the attack, as compared with the standard figures on the duration of the ailment. (2) Little difference had been found in the progress of cardiac and noncardiac patients convalescing from chorea; the weight gains would slightly favor the noncardiacs. (3) Chorea patients were not hindered in their convalescence by the presence of other patients or by the nursing methods—a point of great importance in mental therapy. (4) This more active method in caring for the chorea patient was in line with the latest advanced ideas of convalescence in other diseases. (5) By better "conditioning" in the open air, during this stage of chorea, the patient was found to be stronger in every way at the termination of the attack; physically improved; morally encouraged as to the outcome and the effect of this disease upon his ultimate well being; mentally given an interest in out of doors and in play as a valuable means of upbuilding. These things, Dr. Irving believed, tended toward a lessened recurrence of chorea.

Dr. FREDERIC BRUSH stated that he had very little to add to Dr. Irving's paper except to note that the point might be lost unless one understood that before the Burke Foundation began its work there was almost no convalescent place for older boys with chorea, and they had been advised not to attempt them; also that it was not best to treat chorea along with other conditions, because the others would ridicule and irritate the choreics. As a matter of fact, the other boys did not badger the boys with chorea, but let them alone, and thus induced normalizing more rapidly. It was nerve and mental therapy of the best kind. Separation of the children with chorea in some severer cases was tried but they always got better results if they were allowed to mingle in with other children. In convalescing in chorea there seemed to be a distinct turning point, occurring toward the end of the second or in the third week, after which came rapid improvement. One learned to wait for this turn, and not be discouraged. The figures gave less than five weeks as average stay, but that was because some came late in the course of convalescence or left for various reasons before con-

valescence was completed. The right stay was from five to eight weeks, the same as had proven best for the cardiacs. Heart complications were present more often than was given by the senders' diagnoses, and probably more than stated in the paper. Another impression which could not be expressed in figures was that a heart complication was nearly always a distinct disadvantage, lengthening the period of convalescence not so much as to nervous symptoms as by a slower restoration of good "general condition," which was the main aim. No claim to a more rapid elimination of choreic nerve symptoms was here made, but rather the plea for speedier general setting-up and normalizing through this active method.

Observations on Cerebrospinal Fluids in Infants and Children.—Dr. STAFFORD MCLEAN presented this paper, which consisted in the analysis of the findings in 250 specimens of cerebrospinal fluid obtained from the records of the Babies' Hospital during the past four years. All bloody fluids were discarded, as well as fluids from all types of meningitis and poliomyelitis. The records of the fluids were grouped according to clinical diagnosis, many of which diagnoses were controlled by autopsy. There were 35 cases in which the discharge diagnosis indicated some intestinal disturbance. In four of these fluids the cell count showed over 20 cells per cubic millimeter. There were five counts of 20 or more cells; one of these was 90; another 70; a third 62, and a fourth 60. While it was true, as shown by this table, that the usual cerebrospinal fluid in active respiratory infections was clear and colorless with a cell count of 10 or less, with a positive Fehling's test and a negative globulin, it was not uncommon to withdraw a clear fluid which contained over 50 cells per cubic millimeter. Among 21 cases of defective cerebral development the fluids were all clear and colorless and in only one instance did the cells number more than 12. In 16 cases of hydrocephalus two fluids showed xanthochromia; the others were clear. In one case with 91 cells the autopsy demonstrated hemorrhagic staining of the dura, flattening of the spinal cord and hydrocephalus. In four cases of status lymphaticus proved by autopsy there was nothing of special interest in the spinal fluids. Among four neuropathic children the number of cells in the spinal fluid was 2, 10, 15, 30, respectively. In 26 cases of tetany the spinal fluid was clear and colorless in every instance. The highest cell count was 30 cells per cubic millimeter. In seven cases of primary otitis media the highest cell count was 10 cells per cubic millimeter. Lumbar punctures were done in six cases presenting symptoms commonly expressed as meningisms, although Dr. McLean did not consider this term acceptable. In all six cases the spinal fluid was clear and colorless. In five instances it was under increased pressure, and in these fluids the cell count numbered 15, 20, and 70 cells, respectively. Among 11 cases of congenital lues, five of which were autopsied, the fluid was clear and colorless in every instance and the highest cell count noted was 48. Many other cases classified in groups were reported, which Dr. McLean said would be reported in detail later.

The Value of the Colloidal Gold Reaction in the Diagnosis and Treatment of Epidemic Poliomyelitis.—Dr. JOSEPH C. REGAN read this paper, which consisted in a study of 21 cases of poliomyelitis which were admitted to the Kingston Avenue Hospital during the autumn of 1920. A total of 74 special fluids were examined, the fluids being taken at intervals varying from the fourth to the one-hundred and twenty-third day of the disease. The curves thus obtained were classified according to the week of the disease in which the spinal fluids were taken. On this basis an average curve was constructed for each week from the first to the eighth; likewise an average curve for the fatal cases. The following conclusions were drawn from the study: There was always a reaction with colloidal gold solution in every poliomyelitis fluid examined during the acute stage of the disease. This reaction was constantly in the same zone with that of luetics. The average curves for the first and second weeks were very similar, and consisted in a gradually rising curve representing a graduated increase in reduction in ascending dilutions of the spinal fluid starting in the reddish-blue zone in 1-10 dilutions and extending into the lilac or purple zone in 1-40 to 1-80 dilutions, and then descending somewhat more abruptly into the reddish-blue zone in 1-160 and reaching the non-reducing or red zone in 1-640. In the latter weeks of the disease the average curve gradually subsided, reaching normal in a minor proportion of the cases (3 out of 10), by the eighth to the ninth week, while in the remaining 7 (70 per cent.) the curve was still elevated at the ninth week. In two cases examined later than the eleventh week, one being in the fourteenth and the other in the eighteenth, the curve was still elevated in both. The earliest subsidence of the curve to normal was the 28th day. Cases presenting a persistence of the very acute curve of the first few weeks up to the ninth week or beyond commonly presented at this time either considerable residual paralysis with slight, moderate or marked polyneuritis, or else slight paralysis with a neuritis which was still pronounced. The writers were inclined to believe that there was a relationship between the duration of the positive colloidal gold curve and the acute inflammatory stage of the malady, so that when the gold chloride reaction became normal the acute period of the disease was over. If this was so the reaction should therefore be of value in determining when the rest of the acute stage might be terminated. The gold chloride test had clearly differentiated in this series of cases the various forms of meningism, tuberculous meningitis, and epidemic meningitis. The only curves with which that obtained in poliomyelitis was apt to be confused were those obtained in cerebrospinal lues and in a minor proportion of cases of epidemic encephalitis. From the former the clinical symptoms, history and Wassermann reaction would afford an absolute means of differentiation, so that no mistakes could thus arise. Most cases of epidemic encephalitis gave a paretic, mild luetic or negative reaction. It was only those which presented a mild luetic curve which would, by means of the gold chloride reaction, be indistinguishable from poliomyelitis. No close relationship was found between the cytology and chemistry of the spinal fluid and the colloidal gold reaction except in a general way. The reactions obtained in the fatal cases although showing a tendency to produce greater reduction, did not differ sufficiently from those obtained in the non-fatal cases to make the test of value in prognosis. It must be realized that the gold chloride reaction was the most valuable laboratory test we possessed at the present time for the recognition of Heine Médin's disease. To realize its full value it must be taken into consideration with the history, physical findings, and other laboratory data in the individual case.

Dr. MARTHA WOLLSTEIN showed how comparatively rare abnormal spinal fluids were in the various diseases of infancy, excluding meningitis in its various forms, as Dr. McLeans had done. She thought, however, that we must concede that the normal cerebrospinal fluid in infants differed from the normal cerebrospinal fluid in adults in that it contained more cells, the average in infants being 20 or even 25. In normal cerebrospinal fluid there was an absence of demonstrable globulin. In some cases of pneumonia and other acute infections there was comparatively often an increase of normal fluid from which inflammatory elements were absent. That kind of fluid was found in cases which for the want of a better name were still called meningismus. In other cases cerebrospinal fluid containing more cells of the polymorphonuclear variety with a slightly increased amount of globulin were present, and those cases were examples of serous meningitis, which was rather rare, but did occur. In their experience this type of cases usually ended in recovery.

Dr. W. W. HERRICK stated that he considered Dr. McLean's paper important in that it was the first paper in which a collection of spinal fluids in a variety of acute diseases in young children had been placed on record. He was interested because he had published the results of a study of the spinal fluids of about eighty adults suffering from various acute infections. About one-third of these showed abnormal findings in the way of an increase in the number of cells or globulin in the cerebrospinal fluid. These were cases of pneumonia, bronchopneumonia, influenza, tonsillitis, scarlet fever, smallpox, and other infections. In the clinical study of the early phases of acute disease one

saw almost constantly severe headache, hyperesthesia, exaggerated reflexes and not infrequently vomiting, and their significance was perhaps that they were related to irritation in the meninges. Possibly this was evidence of a protective reaction consolidating the defenses of the meninges against infection. It was interesting to speculate that in the exanthemata it might be part of an allergic reaction on the part of the ectodermic tissue, since in the exanthemata there were frequently changes which we recognized as serous meningitis. In smallpox there was severe headache, tremendous lumbar pain and vomiting. In the one case examined there was increased globulin and an increase in the number of cells in the cerebrospinal fluid. A great deal had been said as to the danger of lumbar puncture. Those who had had the largest experience were not convinced of the danger of a clean puncture with a small needle and the withdrawal of 3 to 5 c.c. of cerebrospinal fluid; this could do no harm in competent hands. It was important that the practitioner should recognize this and also that he should recognize that a slight increase in the cell count and globulin did not necessarily mean meningitis, poliomyelitis, or one of the group of diseases characteristically involving the central nervous system or its coverings.

Pernicious Anemia with Special Reference to the Spleen and the Large Intestine.—William J. Mayo states that a comparison of fifty patients in whom splenectomy was performed for definitely established pernicious anemia with a similar series of non-splenectomized shows that 21.3 per cent. of the patients with pernicious anemia survived the operation three years or more, living two and one-half times as long as the average in a similar group of non-splenectomized patients at the same stage of the disease, and that 10.6 per cent. are alive after more than five years. The course of pernicious anemia, generally speaking, is ameliorated, the relapses are less severe, and the cord changes less rapid than after transfusion or any other type of treatment with which we are acquainted. If we assume that the removal of the spleen has a beneficial effect, as appears from the evidence at hand, are we to assume also that the spleen is the cause of the changes in the bone marrow? A study of the literature and of the cases observed by the writer does not give this impression. It would be more reasonable to assume that the same agents which destroy the bone marrow injure the spinal cord, produce the achlorhydria and the glossitis, affect the spleen, and that by removal of the spleen a vicious circle is interrupted. Many observers have expressed the opinion that toxic materials from the gastrointestinal canal are the cause of pernicious anemia, and if this is true the probable location of this absorption would be in the proximal half of the large intestine. There is a mystery concerning this portion of the human anatomy which conceals some queer metabolic disturbances. Carcinoma or tuberculosis of the proximal half of the large intestine produces an anemia, unexplained by hemorrhage, much more severe than the anemia of carcinoma or tuberculosis in any other part of the body. Tumors in the right half of the colon which are curable by operation may cause a reduction of the hemoglobin to below 25 per cent., edema of the lower extremities, and a general physical condition which would apparently place the patient beyond surgical interference. Experience with a large number of resections for the relief of such patients in wretched general condition has shown a comparatively low mortality and a high percentage of permanent cures. However, there is too little evidence to show that the etiological agents of pernicious anemia arise in the large intestine. It behooves us to study carefully the blood conditions of all patients who have disease of the large intestine to try to ascertain whether anemia, achlorhydria, glossitis, or some other abnormal condition exists.—*Annals of Surgery.*

Number of Ovariotomized.—When Zola was about to write his book entitled "Fecundity," he asked of Pozzi the probable number of French women who had up to that period been sterilized by removal of the ovaries. The estimate of the latter was half a million. This number is difficult to visualize even now.—*Le Progrès Médical.*

Books Received.

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PROTEIN THERAPY AND NON-SPECIFIC RESISTANCE. By WILLIAM F. PETERSEN. 314 pages. Price, $4.50. Published by the Macmillan Company, New York.

ABDOMINAL PAIN. By NORBERT ORTNER. 362 pages. Price, $5. Published by Rebman Company, New York.

STUDIES IN INFLUENZA. By D. BARTY KING. 88 pages, with illustrations. Price, $2 net. Published by Paul B. Hoeber, New York.

DIAGNOSTIK UND THERAPIE DER OHRENKRANKHEITEN. By Dr. CONRAD STEIN. 276 pages. Price, 48 marks. Published by A. Marcus & E. Webers Verlag, Bonn.

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FIFTY-SEVENTH ANNUAL REPORT OF THE TRUSTEES OF THE BOSTON CITY HOSPITAL. Compiled by Trustees. 115 pages. Published by City of Boston Printing Department.

DIE RÖNTGENDIAGNOSTIK DER MAGENKRANKHEITEN. By M. FAULHABER and L. KATZ. 112 pages, with illustrations. Price, 17 marks. Published by Carl Marhold, Halle a. S.

PATHOLOGIE UND THERAPIE DER HÄMOLYTISCHEN IKTERUS. By M. MOSSE. 50 pages. Price, 5.80 marks. Published by Carl Marhold, Halle a. S.

LEITFADEN DER ELEKTROMEDIZIN. By AUGUST LAQUER, OTTO MÜLLER and PHIL NAT. WILHELM NIXDORF. 243 pages, with illustrations. Published by Carl Marhold, Halle a. S.

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Original Articles.

THE TREATMENT OF ARTERIAL HYPERTENSION WITH LOW SODIUM CHLORIDE DIETARY.

BY HARRIS A. HOUGHTON, A.B., M.D.,

NEW YORK.

CONSULTANT IN METABOLISM, MANHATTAN EYE, EAR AND THROAT HOSPITAL.

WE are indebted to French clinicians for knowledge of the part played by sodium chloride in causing certain forms of edema, and again, latterly, to the suggestion that this salt is largely responsible for arterial hypertension. Little has appeared in American literature concerning the latter relationship. F. M. Allen of Morristown published a short note about one year ago (*Journal of the American Medical Association*, 1920, lxxiv, 652) in which he called attention to the association of high plasma chlorides and high blood pressure and suggested that they stood to each other as cause and effect. This was followed last winter by an article by John H. Musser of Philadelphia (*New York Medical Journal*, 1920, cxii, 570), who presented some clinical data along the same line.

The immediate toxic cause of high blood pressure has naturally been of great interest to the clinician, for ignorance has precluded definite and satisfactory treatment. Search for a hypothetical pressor substance has been directed along diverse lines. Many expected that it would be found among the protein fragments of metabolism, the primary postulate usually being a damaged kidney. Endocrine disorders of toxic origin, bacterial toxins from focal infections, including especially those from the colon, have been studied, each in turn. Notwithstanding lack of definite results in treatment, these associations are recognized. The immediate cause, however, has eluded identification.

In an experience now large enough to warrant temporary conclusions, and especially in view of the publications of Allen and Musser, it has become increasingly evident that sodium chloride is the immediate and chief toxic agent, often associated, especially in those with higher pressures, with excessive retention of water and possibly uric acid. Kidney incapacity is again postulated and often high intake may be a causative factor. This conclusion has been made possible by two diagnostic refinements recently developed, viz., blood chemistry, whereby it is possible to determine quantitatively material in the blood plasma that should be excreted through the kidneys, and a better knowledge of the chemistry of food stuffs, whereby conditions discovered by blood examinations can be efficiently controlled by chemically correct dietary. The solution of no other problem in clinical medicine promises so rich a return in human happiness and longer life, as the solution of this problem of high blood pressure. It will throw a flood of light on many other deviations from normal health, both major and minor, which have proved most troublesome.

The Metabolism of Sodium Chloride—The presence of sodium chloride in the plasma and cells is essential to vital processes, but so far as is known, its metabolic chemistry is extremely meagre. Perhaps a small portion is split to assist in the formation of gastric hydrochloric acid, but even this portion tends to cyclic change and is again resecreted into the stomach. However, its usefulness is by no means negligible as it maintains, with magnesium, a base balance in the body fluids, as against potassium and calcium. The base intake, other than sodium, is very constant and therefore sodium as chloride is used largely by the organism to maintain the molecular concentration of the plasma at a constant level. Under normal conditions the sodium chloride concentration does not wander far from 0.565 grams per 100 c.c. Apparently the kidney plays a part in maintaining this concentration by removing water from the plasma, or, if conditions are the reverse, in delivering a urine of high concentration when water retention is necessary. Even under pathological conditions the balance is very closely determined. The daily intake of sodium chloride varies with the character of the food, the amount used in cooking and that used on the table. With an ordinary diet, an individual with fair taste for seasoning will consume from ten to fifteen grams of salt daily. With high proportion of meats, and high seasoning, the amount may reach twenty grams. Diffusion into the blood stream is rapid under normal conditions and an amount equivalent to the intake reappears in the urine in a few hours. In the meantime, nature is further assisted in maintaining the osmotic tension at normal by frequent water ingestion, and this also in turn stimulates excretion.

The Effect on the Kidney of Acute and Chronic Irritation and Overwork.—Patients having high arterial tension almost universally present a history of acute infectious disease—especially scarlet fever—and clinical examination will develop the presence of chronic infections as sequellæ. Apparently the clinical progress of the disorder may be summarized as follows. Those cells of the kidney concerned in the excretion of sodium chloride are the first to yield to these infectious processes and the "factor

of safety" is gradually lowered as the irritation continues. Oftentimes the irritation is reinforced in its action by gross dietary errors and high sodium chloride intake. The expression in the urine is the persisting trace of albumen, a sign of irritation found at the time that the examination is made. Nor is the process which is oftentimes so chronic necessarily constant. Long periods may elapse when the focal infections are quiescent. With a continuance of the irritation the blood picture, as revealed by those chemical methods now employed, gradually changes. As has been stated, the first cells to yield are those which have to do with the excretion of sodium chloride and with a constant or excessive intake its percentage in the plasma will rise. There is likewise apparently a voluntary retention of water to maintain the osmotic tension. The arterial tree gradually becomes distended. In the later stages the water retention becomes a condition *per se*, and is not a compensatory phenomenon. The arterial tension rises gradually to meet these changed conditions.

The second renal function to be curtailed is that of the elimination of uric acid, followed by a gradual rise in the plasma content. Urea and creatinine gradually follow and in the order named. As is well known, a creatinine content of the plasma over 2.5 milligrams per 100 c.c. is of grave prognostic import. This picture may not hold in every case, but on the whole it is fairly representative of the average high blood pressure patient. Each individual has his own peculiarities which must be taken into account in the dietetic treatment. Many details are of course lacking, but the above statement presents a working hypothesis which has the virtue of clinical substantiation.

The status of uric acid in the etiology of high blood pressure, particularly in those cases which show a pressure of 200 mm. or more, is unknown, but apparently it does play some part. Urea and creatinine do not. These statements are based on clinical evidence. Should an attempt be made to reduce a blood pressure of 235 mm. by withdrawal of salt and water from the dietary of an individual in whom the blood shows on analysis both salt and uric acid retention, it will be found that the pressure will fall slowly, perhaps to normal, but more often will "stick" in the neighborhood of 160 mm. On the other hand, if the purins also are eliminated from the dietary, the reaction on the part of the organism, assuming that the kidneys have not too far lost their function, will be prompt and the pressure will fall.

The Sodium Base and High Blood Pressure.—Again, from clinical experience, the thought has suggested itself that the primary cause of the trouble lies in the sodium base. The following experience is a constant one. There are many patients who, to ease digestive disturbances, take sodium bicarbonate. Blood pressures will not recede under such conditions. Therefore, laxative salts should be interdicted. With ordinary food intake, sodium in other forms than the chloride tends to remain at a low level and constant. Man is the only animal which has unlimited sodium chloride at his command and in civilized communities its use increases to satisfy jaded palates. If it shall be determined that the primary fault lies in the sodium base, it will be possible to arrange refinements of dietary which will give quicker and more certain results.

Blood Examinations.—It is always well to make the blood examinations as "complete" as possible, for other factors which vitally affect the life, health, and symptoms of the patient may thus be revealed. For instance, a plasma sugar over 150 milligrams per hundred c.c. of blood indicates pancreatic incapacity and potential diabetes, assuming the blood is drawn three or more hours after a meal. With this knowledge, a slight change in the diet may prolong a life for many years. If there is a high content of sodium chloride and the uric acid content is normal, many articles of food, such as meat and coffee, may be left in the diet of high blood pressure patients, and their comfort enhanced. If the carbon dioxide absorption capacity of the plasma is low, the cause of the acidosis must be immediately located and removed. If there is a high protein metabolism and high plasma sugar, in association with a high pulse rate, this is a clear indication of a potentianl or established hyperthyroidism. From the metabolic standpoint, each case presents a definite problem, the limitations of which should be clearly determined

TABLE SHOWING EFFECT OF LOW SODIUM CHLORIDE DIET ON HIGH PRESSURE

No. of Case	Initials of Patient.	Date of Examination.	Age	Weight in Kilos.	BLOOD							Urinary Albumen	Date Dietary Commencement.	Systolic Pressure.	Date Close of Observation Period.	Systolic Pressure
					Urea	Uric Acid.	Creatinin.	Sugar	Chlorides	Van Slyke's Chloride Coefficient	CO_2					
	Normal Values on This Line.....				.5–24	.5–3.0	.5–1.2	50–100	520–595	562	Above 55%			120–130 mm		120–130 mm
1	Mrs. T. H...	April 18	72	59	*29.4*	*4.3*	0.6	*192*	*652*	*628*	71%	faint trace	April 22	*235* mm	April 29	125 mm
2	Mr. A. F.....	June 28	45	59	*20.1*	*3.2*	0.6	*142*	*628*	*576*	70%	faint trace	July 5	*160* mm	July 10	105 mm
3	Mrs. T.....	Jan. 25	57	54	*31.5*	2.4	0.8	*114*	*654*	*608*	70%	faint trace	Jan. 30	*185* mm	Feb. 10	110 mm
4	Mrs. J. C. H.	March 29	63	60	22.8	*3.9*	0.9	*113*	*669*	*645*	72%	negative	April 5	*190* mm	April 10	120 mm
5	Mrs. J. R....	Jan. 22	66	66	*32.6*	*5.6*	1.1	*133*	*643*	*619*	73%	negative	Jan. 29	*210* mm	Feb. 10	125 mm
6	Miss J. E....	Jan. 4	64	56	*36.5*	7.7	1.2	*124*	*642*	*617*	57%	marked trace	Jan. 10	*190* mm	Jan. 25	130 mm
7	Dr. J. F. R..	Nov. 6	65	56	*31.0*	*3.2*	*1.4*	*110*	*648*	*695*	62%	faint trace	Nov. 15	*190* mm	Dec. 15	130 mm
8	Mr. C. D....	June 4	24	64	17.0	1.8	0.6	*124*	*682*	*595*	68%	trace	June 10	*160* mm	June 15	115 mm
9	Mrs. F. S....	June 7	74	53	*33.9*	*6.8*	1.2	*151*	*636*	*603*	69%	trace	June 10	*200* mm	June 16	105 mm
10	Miss L.....	May 20	63	45	15.4	1.9	0.8	*156*	*682*	*598*	67%	trace	May 25	*180* mm	May 31	130 mm

Blood Examinations by Dr. Cyrus W. Field.—Abnormal figures are italicized. Patients were instructed to drink two glasses of water, one and one-half hours prior to the examination and to empty the bladder one-half hour later. At the time that the blood was drawn the one hour's collection of urine was used for the calculation of Van Slyke's formula,

$$\text{Coefficient} = \frac{D}{Bl.\sqrt{V.} \times Wt.}$$

in which *D* is the daily output of the substance (sodium chloride in this table) in grams as calculated from the output during the test period. *Bl.* is the concentration of the substance in the blood plasma, expressed as grams per liter. *V* is the volume of urine for 24 hours as calculated from the output during the test period. *Wt.* is the normal weight of the patient at maturity expressed in kilos.

prior to dietary treatment, and there are almost as many variations in diet as there are patients. It has been found that the calculation of Van Slyke's coefficient (modified from Ambard's) is a most useful procedure, giving a mathematical factor which is expressive at the time of kidney capacity for excretion. A second blood examination three or four weeks after beginning the diet with lowered pressure indicate by calculation of the Van Slyke coefficient a recovering renal function for the elimination of sodium chloride and a happier prognosis.

The Proper Handling of the Patient.—Patients fall naturally into two classes, *i.e.* those with pressures over 200 mm. and those whose pressures are below that figure. In dealing with the former class, it has appeared best not to reduce the pressure too suddenly, unless, for the sake of relieving myocardial insufficiency, rapid results are necessary. It has therefore become the habit to indicate a diet which contains not more than four or five hundred c.c. of water, as low a purin content as possible, and one which contains a maximum of four grams of sodium chloride by calculation. This assumes a blood examination as basis for the procedure. A diet of this nature will reduce the pressure gradually to 150 mm. or thereabouts. The sodium chloride content of the diet is again recalculated and the intake brought down to less than two grams daily. The pressure will then go to normal or below. Pressures falling to a subnormal are not unusual, and in such an event, sodium chloride should be added to the intake to bring the pressure back to the normal. If at the end of a four-day period, a twenty-four hour specimen of urine shows an output of more than two grams of sodium chloride, the diet is not sufficiently free from that substance. Consequently, the blood pressure will not be normal. The converse is also true.

If the urinary excretion for the twenty-four hours shows a sodium chloride content of less than two grams and the blood pressure has failed to reach the normal figure, there is only one answer. The kidney capacity for the elimination of salt is very low, and a persistence in the dietary restrictions lasting for weeks is necessary to achieve the desired result. The converse of this is also true. There is little to be said concerning the lesser tensions. Uncomplicated by uric acid hold-up, the dietary management is simple, always calculating on an intake of less than two grams of sodium chloride daily, though oftentimes a daily intake of four grams will produce the desired end. The water intake naturally lessens as the salt is reduced, but always the warning should be given not to overuse water. Many patients have been contrariwise instructed.

To patients of both types the subjective reactions to salt withdrawal are the same, and they should be carefully explained in advance. If this is not done the patient will feel that the diet is insufficient and be apt to break away in spite of advice. On the third day following the initiation of the new dietary regime, a feeling of lassitude begins which is overcome with great difficulty. It increases until the sixth or seventh day. Whether this is due to the withdrawal of the nervous stimulation of the sodium chloride or to the falling pressure, it is impossible to say. Perhaps both are factors. By the eighth day the patient, still following the diet, things begin to look a little brighter and strength begins to return. There is then built up a mental clearness and resiliency which earns much comment and gratitude from the patient. By the close of the second week, lassitude has entirely disappeared, and this is accompanied by a host of minor symptoms, insignificant from the physician's standpoint, but always troublesome to the subject.

Water as a Factor in High Blood Pressure.—Little has been said concerning water as a factor in the production of high blood pressure. In the higher pressures it is quite evident that failing capacity of the kidney to eliminate water is a decided factor. At the same time, the major reason why water is not eliminated in the lower pressures lies in the fact that there is retention to maintain osmotic tension in the presence of sodium chloride excess. Limiting the salt intake, therefore, serves as a partial corrective for the distended arterial tree. The reaction of the organism to water withdrawal is constant and interesting. Patient may lose as much as fifteen pounds in weight during the first week—all water. The accompanying weakness is due to the falling pressure and salt withdrawal. To this time no patient has yet been seen who did not concentrate urine successfully with water withdrawal, notwithstanding the fact that there may be a history of several years of inability to do so.

As will be seen in the table of cases, it often happens that the blood pressure will reach 100 mm. by the tenth day or sooner, and the patient may voluntarily go to bed. Two grams of salt should be added immediately to the daily intake and the pressure will promptly—sometimes within a few hours—return to normal. The whole chain of events is usually so striking to the patient that it serves as a valuable object lesson. On a diet containing less than two grams, symptoms of salt starvation will supervene in three or four weeks, namely, sleeplessness, headache and weakness, assuming a kidney capacity for excretion of more than two grams. At this point, or perhaps a little sooner, it is best to return to an intake of four grams daily. This amount can then usually be borne without return of a high tension. The final test is the blood pressure, for at normal, no matter what the intake, there is sufficient in the body to supply metabolic needs.

The Psychology of Diet.—It is always desirable to find out what the patient usually eats, and his daily dietary habits. From that list, a low salt diet usually can be arranged with a minimum of discomfort to the patient. It is surprising oftentimes how little change is necessary except to stop the use of salt in the kitchen and on the table. It has also been found inadvisable to leave the matter of food intake to a general statement of the foodstuffs available for use. Better technical results are obtained if a full menu of twenty-one meals for the week is furnished. The patient is thereby directed to a more intelligent cooperation. The habit of using salt on the food is purely artificial. Patients miss the taste during the first few days and complain vigorously. But several times, when, to hold a patient for future good, he has been advised to use a little salt with the food, it has been found that the taste for it has gone and there is a distinct dislike. Even children have refused to resume its use.

Some Sources of Error.—There is no department of medicine where attention to every detail is more necessary to achieve success. Lines of procedure as given above yield definite results, yet, in earlier experience, failure was common. It was felt that there was nothing incorrect in the principles involved but that the failures were due to lack of knowledge in applying the principles. Larger experience confirms that judgment. It was in tracing down the causes of failure and correcting them that an appreciation of the narrowness of the working pathway developed.

The examination of blood must be started within two hours after its withdrawal. The usual institutional procedure of allowing specimens to stand on the laboratory table over night will yield vicarious results in this work. The reasons for this must be left to chemists, but the fact remains. When estimations are made on whole blood, the results are inconstant and misleading; when made on plasma, the results are constant and consistent. Here again, the argument must be left to the chemists. The sodium chloride content of plasma is a constant within the limits to be defined later. Many errors arise in the laboratory during the course of blood examinations of which I am not qualified to write. Technically this work is of the highest type, and in the hands of one with highest training it has its limitations. In the hands of the unskilled the results are worse than useless because they are misleading. The common practice of taking a young woman from a nearby farm and attempting to evolve a laboratory technician will not suffice in this work. The question here comes up whether a technician with thorough theoretical and laboratory training can do blood chemistry satisfactorily without the added knowledge derived from a medical education. The clinician must be ever on guard against taking a narrow view of the patient's condition. The relationship between an excess of sodium salts in the blood and high arterial tension may be regarded as established, taking into account the other factors named. In probably 90 per cent. of high tension cases, even after the tension is lowered by the methods detailed above, the trace of albumen will persist in the urine and continue until the septic cause thereof is found, and removed. In this last point may be found the ultimate "cure" of the patient, and a recovery at least to some extent of the excretory power of the renal epithelium.

The Complications of High Arterial Tension.—The symptoms of high arterial tension are often masked by others of a more serious nature referable to the heart or other organs. This is well illustrated by Case No. 6. Here the patient was suffering from decompensating heart secondary to a mitral lesion and a high pressure. Bringing down the pressure was followed by immediate relief, as was to be expected. It is really startling to watch the general improvement and relief from symptoms which accompanies dechlorinization in patients who suffer from true angina pectoris. All have at least a little high tension. The principles herein laid down are applicable to the aged in whom there is high degree of arteriosclerosis, and in these I have seen nothing but good follow. The pathological blood pressures of pregnancy may be treated likewise, provided the process is not too acute, although the limitations in this field have not been carefully worked out.

A flood of questions naturally springs to mind. Occasionally a patient will be encountered whose blood will show on examination a high plasma percentage of sodium chloride and whose blood pressure is normal. This has been encountered in pulmonary tuberculosis and pernicious anemia. Apparently the pressor and depressor substances neutralize each other in their tension effects. Occasionally a patient will be found whose plasma contains normal salt percentage, and who has a moderately high arterial pressure. So far, such patients have presented a type of nephritis which is more acute and falls into that category known by the French as "azotemias." Plasma nitrogen is high and the outlook is very discouraging. Diabetics often show high blood pressure and high plasma salt content. Their condition is always benefited by attention to the salt content of their food. There have been a few patients presenting the association of high salt content of the plasma, and a high blood pressure in whom withdrawal of salt, purins and water have apparently failed to produce a lowering of pressure. I have not always been satisfied with the technical handling of these patients. I am inclined to think that these failures are due to faulty technique rather than any negation of the general principles. Some patients thought to fall into this category afterwards worked out satisfactorily, the difficulty apparently lying in the very low excretory power of the kidney for the elimination of salt.

The dietary for each patient should be made up separately on the basis of the blood examination. Every patient is an individual problem. It does not yet appear that standardization of diets is possible in this work, or that quantity production can be applied to this field of medicine. The common practice in hospital life of ordering a "salt-free" diet, may perhaps yield some results in patients who have edema of the legs, but it is essential that in lowering blood pressures the salt intake must be less than two grams daily. The best dietary results are achieved in the home with intelligent co-operation of the patient. Less efficiency is expected of patients who live in hotels, but even here the results have been satisfactory.

CASE I.—Mrs. T. H. Lives in a hotel. Married and two children. Present symptoms headache, lassitude, early fatigue on exertion and slight dyspnea. Previous etiological infections: Scarlet fever in childhood and pneumonia at 23 years of age, with repeated attacks of acute tonsilitis during third and fourth decades. There is now present chronic tonsillitis, chronic gallbladder disease and chronic enterogenic intoxication with moderate indicanuria. Complicating conditions: Subacute keratitis and potential diabetes. After institution of a low sugar, low salt (four grams), low purin diet, her systolic blood pressure promptly went down from 235 mm., until on the seventh day, it was 125 mm. On the fourth day of the diet she was taken suddenly ill and obliged to go to bed with severe pain in the left loin. High colon irrigations and the character of the fecal discharge clearly disclosed the nature of the trouble. Rapid dechlorinization was undoubtedly assisted by the irrigations.

CASE II.—Mr. A. F. complained of left sided, frontal migraine, attacks averaging one day duration, every ten days and terminating in vomiting. These began after a typhoid fever at 12 years of age and have never been relieved. Previous etiological infections include scarlet fever and typhoid fever in childhood, and dis-

tinct history of attacks of colonic intoxication. There is now present chronic sphenoidal disease, and tonsils which give every indication of covering sepsis. The dietary régime was carried out in the home. On the fifth day following the beginning of the diet, his blood pressure had gone from 160 mm. to 105 mm., with the usual reactions of weakness from lowering pressure; he was nearly prostrated. Four grams salt daily was added to the dietary to bring back the pressure to normal. On this date, (July 30) the pressure is 125 mm. and while it is much too early to predict any premanent result, the headaches have disappeared.

CASE III.—Mrs. E. T.—Symptoms: Feeling of lassitude and fullness in the head amounting at times to dizziness. At other times it took on that form of buzzing which is so characteristic of Mènier's disease. She also presented a right ulnar neuritis of two years' standing, which gave her much pain and loss of sleep. Previous etiological infections: Scarlet fever early in life. During mid-life, following years of tonsillar difficulty, she had an acute attack of diphtheria which left her with paralysis of a segment of the colon. This was followed by some years of severe colonic intoxication, which was finally cured by abdominal massage, and instillation (rectal) of cultures of *B. coli*. Complicating conditions included a low grade keratitis. The diet was carried out in her home, notwithstanding some difficulty in getting the patient to understand what was wanted. This was low sodium chloride, (under three grams) practically purin free, with water intake restricted. The tonsils were removed by Dr. F. N. Irwin. Subsequent to beginning of the diet, I did not see her for nine days as she lives at some distance. The systolic pressure at that time was 110 mm. and she was very weak. Four grams of salt were added to the daily intake and four days later the pressure was normal. In the meantime, the pressure symptoms disappeared, and the neuritis also cleared up. Last seen, May 20, when the systolic pressure was 125 mm.

CASE IV.—Mrs. J. C. H.—Symptoms: Lassitude, moderate dyspnea, and frontal headache. Previous etiological infections: Scarlet fever and pneumonia in childhood. Latterly there has been occasional attacks of tonsillitis, pus appearing in the tonsils on examination. Complicating conditions: Acute keratitis. The dietary régime was carried out in the home, and there was some delay owing to the fact that perhaps I was not as specific as necessary in giving directions. Several visits to the office followed during which time the blood pressure slowly went to normal as the withdrawal of purins and sodium chloride became more perfect. On April 10 the systolic pressure was 120 mm. On May 26 the pressure was 130 mm. and she was still adhering to her diet because she felt so well.

CASE V.—Mrs. R.—Symptoms: Slight dizziness, periodic frontal headache and slight dyspnea. Several times daily, for a period of from one to two minutes, she would have a feeling she described as "everything was sliding out from under." At times this seemed to amount to momentary loss of consciousness. This symptom had persisted for several years. The diet was carried out in her home, and the intake of sodium chloride and purins was placed at a low point. The pressure went from 210 mm. to 125 mm. in eleven days. The reaction of weakness was unusually severe. In the meantime, her pressure symptoms disappeared and she lost the feeling of dread which was the result of the periodic partial fainting. On May 26 the systolic pressure was normal.

CASE VI.—Miss J. E. This case is included because it shows what can be done with patients with cardiac lesions as complicating factors in high arterial tension. The patient was in bed with edema of the legs and periodic attacks of severe dyspnea (several times daily lasting from ten minutes to half an hour) which were determined by myocardial degeneration, especially of the right heart. The attacks were distressing and dangerous. The mitral lesion was evidently of long standing. Twenty-four hours after being thoroughly established on a low salt and purin-free diet, with restricted water intake, the anginal attacks ceased and a week later her blood pressure had gone down from 190 mm. to 160 mm. Further instructions as to diet were given and in a few days more the systolic pressure was normal. The edema quickly disappeared. A rest in bed of some weeks followed, allowing plenty of time for the weakened heart muscle to recover. Miss J. E. was seen with Dr. R. R. Ryan.

CASE VII.—Dr. R. No active symptoms, except perhaps a consciousness that his mental activity was below normal. Previous etiological infections: Scarlet fever, pneumonia, and what was diagnosed during young manhood as pulmonary tuberculosis. There was also a history of chronic appendicitis with operation. During the course of the dietary régime, Dr. R. missed his salt intake, and took it upon himself to do a little experimenting. Twice during the two months of observation, he presented himself with blood pressures of 160 mm. and 150 mm. respectively, confessing after examination that his yearning for sodium chloride on his food had overcome his judgment or stimulated his curiosity as to results. On December 15 the systolic pressure was 130 mm. It was again normal on January 20 after the two rises spoken of above. It was 125 mm. on June 15.

CASE VIII.—Mr. C. D., in his twenty-fourth year had a moderately high blood pressure (160 mm.) coexistent with attacks of epilepsy, apparently dependent upon sphenoidal sinusitis. The diet prescribed during a brief stay at the Manhattan, Eye, Ear and Throat Hospital was approximately purin and salt free as shown by the chloride excretion of a twenty-four hour urine specimen indicating an intake of less than one gram (0.7 gram). This may be considered an excellent dietary result. The previous etiological infections included scarlet fever, measles, acute and chronic tonsillitis, colonic intoxication and early prolonged southern malaria. The systolic pressure was reduced to 120 mm. in two days.

CASE IX.—Mrs. F. S. The symptoms were those of gout. Previous etiological infections: Scarlet fever, typhoid fever, and a coexisting gall-bladder disease. In four days after beginning the diet, the systolic pressure was reduced from 200 mm. to 130 mm. and two days later was 105 mm. There was much weakness, the patient spending much of her time in bed. Four grams of sodium chloride was added to the daily ration and four days later the pressure was again normal to the great relief of the patient. There was also a reduction in the sugar intake inasmuch as her blood sugar indicated a condition of potential diabetes. In the meantime the gouty symptoms disappeared. The patient had previously been operated for double cataract. Arteriosclerotic conditions were very marked.

CASE X.—Miss L. This case came from the clinic of the Manhattan, Eye, Ear and Throat Hospital, and was chosen to illustrate what can be done with people of reasonable intelligence who live in the cheaper grades of New York restaurants. The obvious clinical symptom was chronic glaucoma, and there was a high degree of arteriosclerosis. Previous etiological infections: Scarlet fever, pneumonia and urinary cystitis of some years standing. There was also a chronic tonsillitis, as pus appeared on stripping the tonsil. The reduction in blood pressure was delayed owing to the fact that it seemed to be almost impossible to convince the patient that milk contained sodium chloride and to leave it alone. Finally, after the milk intake was stopped her pressure went from 180 mm. to 120 mm. and she felt much better for the change. She still sticks to her diet from choice and the blood pressure is still normal.

Summary.—1. Arterial hypertension is a tertiary condition. The immediate or determining cause is a larger intake of sodium chloride than the damaged kidney can excrete. Complicating causes are the presence of an excess of water in the blood and distension of the arterial tree, and possibly the retention of uric acid. Kidney limitations causing retentions of this type are undoubtedly determined by previous attacks of acute infectious disease, notably scarlet fever, and indefinite continuance of the irritation from the absorption of toxins in residual local septic foci. With the renal epithelium, all the highly specialized organs of the body suffer in the process, notably, the cells of the thyroid, pan-

creas, eye and perhaps the endothelium of the arterial wall. Our appreciation of the damage to the renal epithelium is more certain owing to the precision of blood chemistry. It is the failure to recognize the universality of these processes and their slow effects that determine a limited view of degenerative processes.

2. "Bright's disease" is a symptom and not a primary condition, unless the etiological infection develops in the kidney itself. Mental lassitude finds a resting point in the use of this term in much the same way that it finds expression in the use of the word "dropsy." Albuminuria of any degree which is of renal origin is a manifestation of irritation. Treatment, to be complete and of permanent benefit to the patient, should include elimination of septic foci, as well as the correction of the malmetabolism through dietary regime.

3. There is good reason for believing that the real toxic immediate cause of high arterial tension is the base sodium. To a more limited extent the other vital bases, potassium, magnesium and calcium may participate, although this is doubtful.

4. The blood plasma of a patient with arterial tension should regularly show an excess of sodium chloride content, and a high Ambard threshold. If this result is not obtained, pathological processes may usually be looked for in the laboratory technique as well as in the patient. If the hypertension does not become normal within a reasonable time, either the patient's diet is not below two grams in sodium chloride content, which may be determined by a twenty-four hour urinary examination, or advanced anatomic nephritis is present which prevents rapid dechlorinization and dehydration. Time and proper diet will usually produce the desired results.

5. Cardiac complications are immeasurably benefited by reduction of blood pressure, and this is the natural and rational method of giving relief. The low-salt diet furnishes the best therapeutic measure. Attention to these details should be given in the treatment of diabetes, toxic eye conditions, toxemias of pregnancy and in the post-operative care of surgical patients.

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SOME REMARKS CONCERNING COMPENSATION FOR OCULAR INJURIES.*

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THIS paper is written partly in the hope of drawing attention to some of the difficulties that have been observed in eye and ear litigation in the prosecution of corporations by injured employees before State Industrial Commissions. It should be admitted at the start that such Commissions have amply demonstrated their usefulness and necessity, even under adverse conditions. Petty claims for damages can be speedily settled before such informal tribunals without the waste of time and money necessarily expended in trials before higher courts, where the dockets are already clogged by innumerable cases that can only be reached after a very long and indefinite period. But it must not be forgotten, that trials before the Industrial Commissions are not final in their outcome, for either side of the controversy can appeal to a higher court for a further decision if, for any reason, they desire to do so.

In order that the decisions of such Commissions shall be reasonably just and satisfactory, the Commissioners themselves should be men of high character and intelligence, possessed of fair, unprejudiced, and unbiased minds, and should not be composed largely of either the employer or employee class of men; there should be a fair division of both. Cases heard by Industrial Commissions are mostly instances of injured men, prosecuting their employers for physical disability. It is but natural that a Commissioner, who has been a laboring man, should have sympathy for those who labor and that a Commissioner, who has been an employer of labor, should sympathize with other employers of labor. Inasmuch as most men belong to either one class or the other, it is evident that Commissioners must largely be selected who are either employers or employees. It is merely contended that Commissions should not be practically composed of men in either one class or the other; there should be a fair intermingling of both. Commissions in some States are composed largely of ex-laboring men who have received such positions by gubernatorial preferment. Such men, although honest, will probably with the best intentions in the world, quite naturally, sometimes render decisions that seem to favor the laboring classes, thus giving the Commission the reputation of a class bias, prejudicial to its usefulness as a judicial body. Commissions should not lean either one way or the other in rendering decisions; they should be open minded and should decide cases on their merits without fear, sympathy or favor. Any other course if continued will detract from the reputation of Industrial Commissions in general and will ultimately necessitate their abandonment on the ground of unfairness and incompetency.

Commissioners should remember that if they desire a permanent continuation of such semi-judicial bodies, and if they do not desire the humiliation of a frequent reversal of their opinions by the higher courts, their decisions must be based on an absolutely impartial consideration of the cases that are tried before them. Sentimentalists and partisans may argue that the poor laborer should be given the advantage in such trials; that he has a family to support; that he has been injured while working for some wealthy corporation; that he is poor, needy and unfortunate, etc., etc. Other equally illogical but prejudiced individuals may say, on the other hand, that the man was well paid for his services; that he accepted the job voluntarily; that the employer has a hard time paying expenses and making a profit; that the law is hard on the employer, etc., etc. Both sides of the argument are wrong and pernicious. Cases should be decided on their merits and according to the law without regard to sentiment or class prejudice. No other course can produce permanently satisfactory results and unless this course is followed the useful and desirable Industrial Commissions will have to go and litigations, both large and small, will revert back to the higher courts or some other method of adjusting small claims will be devised.

*Read before the Chicago Ophthalmological Society in December, 1921.

The medical expert is sometimes discouraged at the lack of credence given his testimony. Assuming that the Commission believe in his honesty, skill, and intelligence, it is sometimes difficult to understand the verdict. For instance, a man suffers a comparatively slight blow on the head. In about a month he brings suit for a bad ear that he claims dated from the accident. Examination discloses a profuse foul discharge from the ear with polypi, necrosis, and deafness—conditions impossible to have occurred in so few weeks. Testimony is given accordingly, and yet a verdict in favor of the plaintiff is given. Another instance is that of a man claiming profound deafness in one ear, who by the malingering test is found to be grossly deceiving and yet he received a verdict. Another man claimed excessively poor vision in one eye and was proved to be a falsifier by malingering tests; he also was awarded damages. Other instances similar to these might be enumerated, but these are sufficient to show that something is wrong with the system when it is possible for proven and sinister liars to go into court and obtain damages for injuries that competent and honest medical testimony has proven to be non-existent. I will not attempt to analyze the source of defect. It may be class prejudice, or ignorance, or non-judicial temperament, or illogical conclusions, or something else; I do not know. But I am sure that this evil exists, whatever it is, and I am also certain that unless it is purged out of the system, the existence of these highly desirable, informal, semi-judicial courts, will be in extreme danger.

I trust that it will not be considered that I am asking for the appointment of supermen to the office of commissioners. Neither do I wish to be understood as believing that mistaken judgment is inconsistent with perfect honesty and intelligence. Commissioners are not trained lawyers and frequently not even well educated men and the only wonder is that they do so well and perform such satisfactory work. Personally, I have always been treated with the greatest courtesy and consideration by the Industrial Commission of my own State and I wish to make it plain that I am *not* criticizing the Illinois Commissioners, in fact, I have two other states in my mind in writing this article. As a matter of fact I do not wish to criticize any set of Commissioners in particular. I am simply reciting some of the errors in the system believing that Commissioners will be quite as anxious to receive suggestions and act upon them as honest observers are to advance them. Industrial Commissions are a new thing and, of course, open to much justifiable criticism. Imperfections will never be overcome without open and fair-minded discussion, instigated, *not* from captious and prejudiced criticism, but from an honest desire to improve the system and insure its perpetuity. May I be pardoned if I refer in passing to a law concerning visual losses that is most unfair and illogical to all parties concerned and has from time to time resulted in working much hardship to both employer and employee. It seems that if a man, who is already blind in one eye, loses the other eye while in employment, the employer is liable for the loss of *both* eyes. This seems almost incredible but it is true nevertheless. It is of course merely common sense to require an employer to be only responsible for the eye that is lost while the worker is employed by the employer and yet the law holds him liable for both. It has been suggested that an applicant for work, who possesses only one seeing eye may give the employer a writing exonerating him from liability for the loss of the blind eye, damaged perhaps years ago, but this cannot be legally accomplished, so tightly have the framers of the law constructed their senseless, unjust, and unfortunate enactment. It is not only unjust to the employer, but it is also unjust to the man seeking work, for who wants to employ a one-eyed man if he assumes a two-eyed responsibility? Thus many men are debarred from desirable occupation because unjust responsibilities are forced upon employers. It is well known that a man with only one eye is not so safe from accidents as a man with two eyes. He is more liable to be injured by collisions, flying objects, etc. on his blind side, and cannot obtain as good and comprehensive vision as a man possessed of two good eyes. Employers, you may be sure, realize the situation and know that they are taking chances when they employ a man with only one good eye and when they also must assume responsibility for an eye perhaps damaged years ago, they are not at all desirous of giving work to a man thus handicapped.

The subject of traumatic cataract is one of great interest and importance in the adjustment of personal injury cases. Let us suppose, for instance, that a man gets a piece of steel in his eye that is removed by a magnet, leaving him with an eye blinded from cataract. Let us further imagine that irritation and inflammation have all subsided but that the cataract remains and that the indications are that a removal of the cataract would result in the restoration of vision. The surgeon now asks the corporation whether he shall remove the cataract and perhaps restore vision or whether he shall cease his attendance and leave the case at this juncture. The corporation will naturally ask as to the probability of a successful result following the operation. This question cannot be positively answered, especially when it is remembered that intraocular steel invasions are apt to be followed by serious intraocular pathological changes, even in eyes that seem, for a time, to be doing well after the steel has been removed. Nevertheless there is frequently a good fighting chance for vision if the cataract is removed. Let us suppose that the employer decides to allow the surgeon to remove the cataract and that after this has been accomplished the vision is 10/200 without a glass and 20/20 with a glass; in other words, the result is perfect. In spite of this, however, the patient will probably not wear the glass, provided his other eye is good, because the discrepancy between the two eyes and the two glasses is so great that he is much more comfortable not to wear his cataract glass at all. He will merely realize that he has an eye upon which he can fall back in case of disease or accident occurring to the other eye. This is like laying up money in the savings bank for use upon "rainy days,"—of no use *now*, but a safeguard for the future. So that, while it is doubtless a satisfaction to the surgeon to know that he has restored vision and a satisfaction to the patient to know that he

has good vision and also a satisfaction to the employer to realize that he has been the financial motive behind the good result, after all where does it benefit the employer in the settlement of the case except through the consciousness of having performed a meritorious act. He has expended several hundred dollars that will serve him no useful purpose in the final adjustment of the claim; the reason being that Industrial Commissions, as a rule, insist upon estimating vision in such cases *without* glasses instead of *with* glasses. The argument being that the accident has destroyed industrial vision unless glasses are worn and that they have no authority to order the wearing of glasses in estimating visual losses. I have no desire to argue the justice or injustice of this claim. I am willing to admit that there are two sides to the question and I have no desire to impose any hardship or injustice on the laboring man; in fact, my sympathies are distinctly with a man who leaves his home in the morning safe and sound and who by night becomes maimed for life. I repeat that my sympathies are *with* him so long as his claims are truthful and honest and just and my experience with employers and accident companies is such that I am confident that in almost all instances they entertain the same sympathies and intend to act accordingly. It is this very sympathy with the injured man that makes me feel that the policy of ignoring the results of successful cataract operations in making settlements is a hardship to the injured man himself, who insists that claims for injury must be settled on a financial basis. There is no room in his scheme for sympathy for the employer or for the extension of benefits to him. He wants his money and he wants all he can get. Then why should the employer spend hundreds of dollars for cataract operations, attendance, hospital bills, etc., when no allowance will be made to him in the final settlement for vision obtained. He might as well, or even better (financially) order the cessation of surgical attendance after the steel has been removed and the eye has become quiet. He will have to pay for the total loss of the eye anyway, even if the cataract is removed and vision is restored to normal. Why, then, should he incur an extra expense of several hundred dollars for which the Industrial Commission will not give him credit? Inasmuch as these cases are to be settled on a financial basis, why should not the employer protect himself financially and allow the injured man to have his cataract removed if he desires and to pay for it himself? The alternative would be for Industrial Commissions, Legislatures, etc., to allow an employer some reasonable financial consideration if he undertakes the expense of a cataract operation. My experience with employers and accident companies is such that I know that almost all of them are not only willing but anxious to do all they possibly can for injured men when they are responsible for injuries and often do more than the law requires, but when it comes to spending several hundreds of dollars and getting absolutely no credit for it, they cannot be blamed if they positively refuse to submit to such injustice. My contention is, therefore, that in case an employee has a traumatic cataract and his employer pays to have it removed, the employee's vision should be estimated *with* glasses and that a reasonable financial concession should be made to the employer for assuming the expense and responsibility of operative procedures.*

Another point I wish to make is to urge employers and employees to insist upon eye and ear examinations before employment is given. This is only justice to the employer for, if he is to pay for eye and ear damages after injury in occupation, he should certainly be allowed the privilege of accurate knowledge concerning ocular and aural conditions before an employee is placed to work. I am well aware that some labor agitators resent such preliminary examinations, and it is certain that such objections can have but one motive and that a sinister one: viz., to prevent a knowledge of old physical defects in order to increase the financial liability of employers in case of accidental injury. A subterfuge of this character is not honest, is unworthy of any straightforward organization, and should not be countenanced. It must be the experience of all surgeons doing any amount of industrial surgery that many employees endeavor to represent that old pathological eye and ear conditions have never existed until some recent accident has occurred. They then claim that an old necrotic discharging putrid ear or perhaps a senile cataract is the result of some recent accident of greater or lesser degree of severity. Personally, I frequently see several such cases in my office in one day and it can be readily understood that deliberate efforts of this nature to deceive and obtain money under false pretenses almost shatters one's faith in human nature and in the existence of common honesty. Employers should, therefore, be allowed to require and should insist upon the careful physical examination of all applicants for work before employment is given. This is not only ordinary justice, but it will save thousands of dollars that would otherwise be paid in the liquidation of dishonest claims. There is no adequate honest reason why such preliminary examinations should not be made and I trust that before long this idea will be universally adopted. Such examinations would likewise be of enormous benefit to employees for it would disclose the existence of perhaps unsuspected diseases that could be benefitted or cured and would call the attention of employees to *known* diseases that could also be relieved by proper medical or surgical advice. The disclosing of diseases or defects would also exert a strong influence in enabling employers to assign to employees occupations harmonious with their physical condition, such as the improving of lighting conditions for workers with poor vision, the forbidding of work on emery wheels when one eye is very defective, keeping men away from dusty places who have sore or irritable eyes, etc.

*In a decision of the Illinois Supreme Court that affirmed an award of the Illinois Industrial Commission and the Circuit Court in the case of Juergens Bros. Co. (plaintiff in error) vs. The Industrial Commission et al. (Fred Kaage, defendant in error), published in volume 290, page 420 Illinois C. S. reports. A decision was rendered in the kind of case just referred to under which the employer was obligated to pay for the complete loss of the use of the eye.

etc. It will thus be seen that these preliminary examinations, while beneficial to the employer, are also beneficial to the employee and as there can be no valid objections to them and as they are needed by both employer and employee, they should be adopted without further controversy.

One obstacle to the just and intelligent settlement of visual losses has been and for that matter is the absurd but, it must be confessed, natural interpretation of Snellen's Test Types in estimating defective vision. Doctors, and I regret to say, eye doctors, have in the past, with the best intentions in the world, endorsed the improper, misleading, and literal readings of Snellen's types for compensation purposes. For instance, they have testified that 20/40 indicated a half loss of vision or that 20/50 indicated 2/5 loss of vision. Some medical men, even at the present day, obstinately persist in such opinions when testifying as expert witnesses, although most ophthalmologists have come to recognize that it is absurd to say that a man's eyesight is half gone when his vision is 20/40, according to Snellen's types. Professor Snellen never intended to have his types and fractions used to indicate visual losses. They were devised merely as an international language to indicate visual conditions, chiefly as relating to refraction work. These views being correct, and it may be safely assumed that they are, it remains for us as ophthalmologists to correct erroneous views of the past and to guide industrial commissions, courts, lawyers, etc., to a rational and correct view of the situation. People of these classes fall back on the old and proverbial "quarrellings amongst doctors" to justify themselves in not abandoning the discarded opinion that 20/40 means a 1/2 visual loss, etc. In truth, it must be confessed, they occupy a defensible position, for in the first place *all* opthalmologists have not espoused the new views and not yet have ophthalmologists in general adopted any new scale for estimating visual losses. So the opposition says, "How can you expect *us* to participate in your 'New Thought' when you yourselves are still fighting? Get together, bring us something that is generally adopted and we will "join the procession. Until this occurs, however, we propose to do as we think best, or rather as *you* have taught us in the past." This is about what they think and, indeed, what they say and who, forsooth, can blame them. Let us then "get together," let us bury our own personal opinions and adopt some plan, some method, some scale that we can unitedly present as being to all intents and purposes a safe, equitable, and reasonably accurate plan to serve as a basis for the settlement of visual losses. It is, of course, understood that no cold table or scale can possibly entirely settle claims fairly or equitably, there are too many conditions to be taken into consideration. A person may have a vision of 20/40, 20/50, 20/30, or what not, and yet have an advancing optic atrophy or choroiditis or detachment of the retina or a cataract, etc., any of which must be taken into consideration in awarding damages. These are conditions which must be solved by the expert medical witness and the time will never come when his services can be dispensed with. A table for compensation is only valuable, therefore, as it provides a basis or foundation upon which to work and as voicing the opinion of the profession of the relationship of compensation to the varying degrees of visual losses. Any one who regards a compensation scale or table as an unbending, inelastic measure of settlement entirely misunderstands and misconceives the object of a table.

In order to construct a table certain initial points must be settled:

1. 20/20 must be admitted to constitute normal vision.

2. Some standard must be arbitrarily settled as constituting industrial blindness.

This latter is a mere matter of opinion. There is no law by which it can be settled. Personally, I believe that when a man's vision is worse than 20/200, he is industrially blind—not actually blind, but industrially blind; that is, unable to earn his living through ordinary means *by his eyes*, each eye being considered as an entity by itself. The question of shifting occupations will, of course, frequently present itself; that is, the necessity of changing vocations on account of visual deficiency, as for instance, from being a watchmaker on a high salary to a day laborer on a low salary. This is a problem that cannot be solved by a scale or a rule; it must be settled by expert evidence and by a judicial and equitable survey of the entire situation. Having, therefore, settled that 20/20 constitutes normal vision and that vision worse than 20/200 constitutes industrial blindness, it simply becomes necessary to graduate in percentages the varying losses of vision between the two extremes in order to frame a compensation table. The amount of damages to be awarded is something that we as table constructors have nothing to do with—it is taken out of our hands and is settled by the State. For instance, the Illinois law awards an applicant 100 weeks of compensation for 100 per cent. of visual loss of one eye with the following modifications. The Illinois law holds that the total loss of one eye entitles an applicant to 100 weeks of compensation with $12 a week as the maximum to be paid, the minimum being $7 a week. In case the maximum is paid, the amount is increased $1 a week for each child under 16 years of age up to and including three children. In case the minimum is to be paid, the amount is increased $1 a week for each child under 16 years of age up to and including three children. Of course no one thinks for a moment that an amount varying from $700 to $1,500 compensates a man for the loss of his eye, but it must be remembered that this compensation is being paid by the employer and not by the injured man himself and a more liberal policy in general would be ruinous to almost any business. Each man can take out all the accident insurance he wishes to or can pay for, but as long as his employer is paying all the damages including doctor's bills, hospital charges, etc., the injured man should be satisfied with reasonable returns.

The only thing to be done now in constructing a compensation table for monocular visual losses is to arrange a mathematically correct graduated scale of visual loss percentages between the two

extremes of the table, or, to be more specific, between normal vision and industrial blindness. This has been attempted by various observers, but the one most favorably considered was adopted by the Chicago Ophthalmological Society at a meeting held November 10, 1919. This is a very fair and reasonably accurate table, but unfortunately it presents certain mathematical discrepancies that will always render it open to criticism. These have been pointed out by Professor G. A. Bliss of the mathematical department of the University of Chicago and others.

THE CHICAGO OPHTHALMOLOGICAL SOCIETY TABLE.

20/20	indicates	100%	of	visual	efficiency	and	no	loss	of	vision
20/30	"	94.5%	"	"	"	"	5.5%	"	"	"
20/40	"	89.0%	"	"	"	"	11.0%	"	"	"
20/50	"	83.5%	"	"	"	"	16.5%	"	"	"
20/60	"	78.0%	"	"	"	"	22.0%	"	"	"
20/70	"	72.5%	"	"	"	"	27.5%	"	"	"
20/80	"	67.0%	"	"	"	"	33.0%	"	"	"
20/90	"	61.5%	"	"	"	"	38.5%	"	"	"
20/100	"	56.0%	"	"	"	"	44.0%	"	"	"
20/110	"	50.0%	"	"	"	"	50.0%	"	"	"
20/120	"	41.0%	"	"	"	"	59.0%	"	"	"
20/130	"	36.5%	"	"	"	"	63.5%	"	"	"
20/140	"	32.0%	"	"	"	"	68.0%	"	"	"
20/150	"	28.5%	"	"	"	"	71.5%	"	"	"
20/160	"	23.0%	"	"	"	"	77.0%	"	"	"
20/170	"	18.5%	"	"	"	"	81.5%	"	"	"
20/180	"	14.0%	"	"	"	"	86.0%	"	"	"
20/190	"	12.0%	"	"	"	"	88.0%	"	"	"
20/200	"	10.0%	"	"	"	"	90.%	"	"	"

It will be noticed that the changes in percentages from line to line are not uniform and, therefore, incorrect and criticizable. For instance, in the last line it says that 20/200 indicates 10 per cent of visual efficiency. The line above says that 20/190 indicates 12 per cent. of visual efficiency. The line above says that 20/180 indicates 14 per cent. of visual efficiency. So far the differences in percentages are uniform; that is, there is 2 per cent, between each line. But the next line says 20/170 indicates 18.5 per cent. of visual efficiency, thus separating the two lines by 4.5 per cent. instead of 2 per cent. The next line is also separated by a difference of 4.5 per cent., for it says that 20/160 indicates 23 per cent. of visual efficiency.. But the next line is even worse, for it says that 20/150 indicates 28.5 per cent. of visual efficiency, a difference of 5.5 per cent., and so on. Other discrepancies will be found on carefully analyzing the table. This table is meritorious and essentially correct and equitable. The compensation from its readings is about the same as that from other tables, but these discrepancies in percentages render it open to criticism and progress toward its general adoption is thereby considerably deterred. I know this is true from personal experience, as I will relate. The Industrial Commission of a neighboring state called me to testify in a certain case, but the real object was to have the Chicago Ophthalmological Society table explained to them. They were favorably inclined to it and really wanted to adopt it, as may be seen from the fact that they paid me $500 for the trip. Notwithstanding this, however, they refused to adopt it on account of the percentage discrepancies, believing that a more accurate mathematical table would soon be presented to which they could subscribe. I have, therefore, conferred with Professor Bliss of the University of Chicago, Dr. J. D. Whitaker of Indianapolis, Dr. W. N. Sharp and Dr. Joel Whitaker of Indianapolis, and Dr. V. A. Chapman of Milwaukee, and we have concluded that the essential features of the Chapman table are the most perfect of any table before the profession. To all intents and purposes it works out about the same amount of compensation as the Chicago Ophthalmological Society table; in fact, most of the tables do this. The only real advantage of the Chapman table is that it is more accurate mathematically and is free from discrepancies, thus rendering it impervious to just criticism and therefore more likely to be generally adopted.

I herewith submit the Chapman table and leave it to the profession to make what use they please of it.

I have changed the table somewhat, in order to clarify it, but the table as here appended is essentially the Chapman table. I have "cut out" Chapman's mention of 20/15 of vision, as being unessential and confusing and start out with 20/20 or normal vision. I also maintain that while the last two items, viz., 20/210 and 20/220 are desirable as completing the table, they are unessential from a compensation point of view, for in the judgment of most fair-minded men anything *less* than 20/200 constitutes "Industrial Blindness."

	20/20	indicates	100%	of	visual	efficiency	and	no	loss	of vision
1	20/30	"	95%	"	"	"	"	5%	"	"
2	20/40	"	90%	"	"	"	"	10%	"	"
3	20/50	"	85%	"	"	"	"	15%	"	"
4	20/60	"	80%	"	"	"	"	20%	"	"
5	20/70	"	75%	"	"	"	"	25%	"	"
6	20/80	"	70%	"	"	"	"	30%	"	"
7	20/90	"	65%	"	"	"	"	35%	"	"
8	20/100	"	60%	"	"	"	"	40%	"	"
9	20/110	"	55%	"	"	"	"	45%	"	"
10	20/120	"	50%	"	"	"	"	50%	"	"
11	20/130	"	45%	"	"	"	"	55%	"	"
12	20/140	"	40%	"	"	"	"	60%	"	"
13	20/150	"	35%	"	"	"	"	65%	"	"
14	20/160	"	30%	"	"	"	"	70%	"	"
15	20/170	"	25%	"	"	"	"	75%	"	"
16	20/180	"	20%	"	"	"	"	80%	"	"
17	20/190	"	15%	"	"	"	"	85%	"	"
18	20/200	"	10%	"	"	"	"	90%	"	"
19	20/210	"	5%	"	"	"	"	95%	"	"
20	20/220	"	0%	"	"	"	"	100%	"	"

In conclusion, I desire to say, that if it is the intention of ophthalmological organizations to establish scales, tables, or rules for the purpose of awarding compensations to the injured, that shall, perhaps, be valuable from an academic standpoint, and comprehensive to educated ophthalmologists, and satisfactory as scientific productions, let them go on formulating abstruse, incomprehensible, impractical resolutions, that will doubtless be satisfactory to themselves, and to the highly scientific organizations, before which such papers are read. But, if they desire to produce something that shall reach the purpose at which such papers are aimed and receive the endorsement of business men, lawyers, courts, etc., they will have to get down to the medically uneducated level of such men, and give them something they can clearly and instantly understand without study. Nothing else will do, and nothing else will be accepted as a working basis for litigation. It must be remembered that eye injury cases are not tried before educated ophthalmologists, they are tried before medically uneducated industrial commissioners, judges, lawyers, and juries. *They* are the people to be reached and satisfied, and we must "cut our garment, according to our cloth." Questions of

an abstruse nature, must be settled by the expert witness on the witness stand. They cannot, and never will be settled by scales, tables or resolutions. Writers and committee men, endeavoring to settle this vexed problem, often make the mistake of thinking that because their literary productions are plain to *them*, they must be plain to everybody. Many of them, however, are not plain even to me and perhaps other ophthalmologists. How, then, can they expect them to be understood and adopted by laymen.

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THE BACTERICIDAL VALUE OF THE ANTI-DIPHTHERITIC SERUM, WITH THERAPEUTIC DEDUCTIONS.

By FERDINAND HERB, M.D.,

CHICAGO

Handed down by Behring more than a score of years ago, the opinion still remains undisputed that the antidiphtheritic serum is an antitoxin, and that its efficiency rests solely upon the neutralization of poisons. This fact can no better be demonstrated than by quoting a recent statement made by Dr. Simon Flexner, of New York. In the first article of the series on "Biologic Therapy,"[1] initiated by the Council on Pharmacy and Chemistry to serve as a guide for physicians and published in the Journal of the American Medical Association, he says: "Diphtheria antitoxin is still the outstanding example of a therapeutically active serum, while tetanus antitoxin has a high protective but a low therapeutic value. These two antitoxic serums act not directly on the infecting bacilli, but on their liberated toxins which they neutralize, after which the body readily rids itself of the bacilli themselves."

It is the object of this paper to disprove the correctness of these views and to show that the antidiphtheritic serum does not neutralize liberated toxins, but does act directly on the infecting bacilli themselves.

In adducing the required proofs to uphold this assertion, it is not necessary to dwell at length upon the neutralization of toxins. Many have attempted to demonstrate this supposed neutralization experimentally, but not one has succeeded. Indeed, the conclusions to be drawn from these experiments point the other way.

A definite clinical proof against the neutralization of toxins is furnished by the accidental destruction of horses that, during immunization, died from a dose of diphtheritic poison which could, and would, be neutralized many times over by the large quantity of free antitoxin found in the blood after death, if antitoxin merely neutralizes toxins. Such accidents have been reported by the Pasteur Institute, Behring himself and many other observers.

A further clinical proof is furnished by the following phenomenon: After immunization, the amount of antitoxin remains for a while at its full height, then it gradually declines, if the inoculations of toxin are stopped. If a single dose of toxin is given before the decline begins, the amount of antitoxin which disappears from the blood is altogether out of proportion to the amount of the inoculated toxin, and would, for simple neutralization, require from two up to ten thousand times the inoculated dose.

Of the many further proofs against neutralization a third may be added. A dose of toxin, lethal to a guinea pig, can be rendered harmless by a definite quantity of the respective antitoxin. If we inject more and more lethal doses, all fully neutralized by the proper amount of antitoxin, the law of multiple proportion holds up to a certain point. If more than ten lethal doses are injected, the law does no longer hold and no amount of antitoxin will avert the fatal issue.

Each of the three clinical proofs submitted speaks absolutely against the antitoxin theory. They can, however, be readily explained on the basis that the specific germicidal antibodies are present in the serum, as we will see later.

Eliminating, therefore, the antitoxin theory, we must look for another cause of the acknowledged good results obtained from antidiphtheritic serum. In doing so, I wish to point to the fact that the inoculation of diphtheria toxins produces immunity in children. Though this fact is too well established to require further proof, the proper deductions from it have never been made.

If we attempt to make these deductions, a peculiar light is thrown, first of all, upon the diphtheritic toxin itself. Immunity is bactericidal. This means, the body of the immunized child has acquired the faculty to kill, and dispose of, diphtheria bacilli, should they invade the blood or tissues; it does not mean that the body of the immunized child has acquired the faculty to neutralize liberated toxins, but must depend upon some other mysterious force to kill, and dispose of, the bacilli themselves. On the other hand, we know that immunity is due to the presence of specific ferments, or antibodies, that kill and disintegrate the bacilli, or at least, upon a state of sensitization, that is, of preparedness of the cells of the body, so that specific antibodies are produced immediately when occasion demands. Specific antibodies, or specific sensitization, however, are not produced unless the body cells have been sensitized by coming in contact with specific diphtheritic antigen. Consequently, the resulting immunity proves positively that such specific diphtheritic antigen is contained in the diphtheritic toxin.

Specific diphtheritic antigen can consist of two substances only: either of the body substance of diphtheria bacilli or of their still specific intermediary split products. As the molecules of the undisrupted albuminous body substance of the bacilli are too large to pass through the porcelain filters used to filtrate the toxins, these specific toxins must be made up of the specific intermediary split products coming from bacilli that have died and disintegrated in the culture.

That such split products can display all the characteristics of the toxins has been demonstrated experimentally by Victor C. Vaughan[2] and his collaborators. They have shown that the intermediary split products of all albuminous substances are in part highly poisonous, but that they lose their poisonous character when broken down into simpler compounds. It has further been shown that the diphtheritic toxins closely resemble peptones, and that they are readily broken down into non-poison-

ous substances by digestive ferments, just as peptones coming from other albuminous substances.

Intermediary split products of albuminous substances, if not broken down too far, retain fully their antigenic properties and lead to the production of the same bacilli-killing and digesting specific ferments, or antibodies, as do the undisrupted molecules of the body substance of the bacilli themselves. The diphtheritic antigen contained in the toxins makes no exception from this well established rule. Its inoculation into the child leads, consequently, to a specific sensitization and to the production of specific, bactericidal ferments, or antibodies, expressed in the term "immunity."

What happens in the body of the child, happens in the body of the horse, used to produce the antidiphtheritic serum. The horse, when inoculated with the specific diphtheritic antigen in the form of toxins, produces the same bactericidal antibodies as does the child. Consequently, these specific, bactericidal antibodies must be in the serum.

The tangle, in which the antitoxin theory has enmeshed us, grows, indeed, hopeless if we ask ourselves how, after the supposed neutralization of liberated toxins, the body can all at once "readily rid itself" of the massive cultures in the throats of suffering children, though it could not rid itself of the few bacilli at the time of the infection, when no toxins as yet existed and the system was at its best, with a full and untrimmed resisting power.

The chief reason why this erroneous antitoxin theory arose and endured so long seems to be the curious fact that diphtheria bacilli grow luxuriantly on antidiphtheritic serum. But does this fact militate against the assumption that the antidiphtheritic serum contains the specific, germicidal antibodies?

In answer to this question I wish to refer to an illuminating experiment made by Fodor.[3] Under aseptic precautions he took blood from the heart of animals and added anthrax bacilli. Plates made from time to time showed a rapid diminution in the number of bacteria until, after a time, the blood lost entirely its germicidal power and became an excellent culture medium, in which the bacilli rapidly increased in number.

In order to show why in Fodor's experiment the blood gradually lost its bactericidal power and finally turned into an excellent culture medium, upon which the bacilli grew luxuriantly, as they do on antidiphtheritic serum, in spite of the fact that the germicidal antibodies are present, I wish to cite some well-known phenomena in parenteral digestion.

Ferments, or antibodies, cannot act without the presence of another substance, called "complement." This fact is fully established and undisputed. It is also fully established that the ferment is not destroyed during its action, but can disintegrate one molecule of antigen after the other. Thus a few ferments can disrupt a large amount of protein. With the complement, however, conditions are entirely different. It is consumed in direct proportion to the work accomplished. In other words, to break down a given quantity of protein, say one gram, requires a definite quantity of complement. If the complement is consumed or otherwise destroyed, the ferment becomes totally inactive. It can no longer kill and disintegrate germs or disturb their growth and multiplication. That the ferment, nevertheless, remains fully alive and retains all its inherent powers to kill and digest is proven by the fact that it resumes its activity immediately as soon as new complement is added.

Thus, the fact that germs may grow luxuriantly on a given blood or serum, for instance on the antidiphtheritic serum, is no proof that this blood or serum does not contain the potentially active, germicidal ferments, or antibodies. Lack of complement explains this fully.

There is ample direct proof at hand that complement is actually absent in all therapeutic serums. This proof will be given in a separate paper, as its details are of too great clinical importance to limit them to the space that could, at best, be allotted to them at this occasion.

An indirect proof is furnished by Besredka's so-called "toxin-antitoxin." In the light of what has been said before, this combination can no longer be considered as a union of toxin with its antitoxin, as the name would indicate, but must be regarded as a union of antigen with its specific antibody. Such combinations are well known and have been studied exhaustively in the past. They are stable only in the absence of complement. With complement present, the specific antibody would break down the diphtheritic antigen, contained in the toxin, into non-specific, non-immunizing fragments outside the body. The immunity resulting from the inoculation of a properly prepared combination proves that this is not the case. However, the specific antigen contained in the toxin is broken down by the specific antibodies contained in the antidiphtheritic serum, if sufficient serum, together with the toxin, is injected into the human body, where the complement is available. Clinically, this has been proven by the unique experience of Dr. Mulsow, of Chicago.[4] Thirty-one young adults received toxin-antitoxin inoculations. "Of these thirty-one young persons, seven have continued to have positive Schick reactions for three months or more following the injections of toxin-antitoxin. In these seven persons, immunizing doses of antitoxin had been injected shortly before, or soon after, the administration of toxin-antitoxin."

Twenty-four persons were immunized, as demonstrated by the negative Schick reaction, because the specific antibodies contained in the toxin-antitoxin combination were not sufficient in numbers to break down the inoculated specific antigen fast enough, so that the body cells took it up and became sensitized, with the resulting immunity. Seven failed to be immunized, as shown by the continued positive Schick reaction, because, with sufficient complement now available, the extra doses of antidiphtheritic serum furnished sufficient additional specific antibodies to break down the specific diphtheritic antigen of the toxin-antitoxin combination into non-specific, non-immunizing fragments before the body cells had time to take it up and become sensitized. This failure to become immunized, then, proves with the preciseness of a biologic experiment that the specific, bactericidal antibodies are in the antidiphtheritic serum, as only these specific, bactericidal antibodies can break down specific antigen.

Therapeutic Deductions.—For more than ten

years past the results obtained in the treatment of diphtheria have not been improved, the antidiphtheritic serum notwithstanding. The cause of this ostensible failure has so far remained obscure. However, the above given elaboration offers more than a mere suggestion where the fault might lie. It strongly points to the possibility, or even the probability, that many, if not most, of the children who die today from diphtheria, die for lack of complement—and that their lives may be saved, if the necessary complement is furnished. These needless deaths of children are, I believe, on par with the destruction of those horses that die during immunization, as mentioned above, and the death of animals if more than ten lethal, though fully neutralized, doses of toxin are injected. A lack of complement offers the only plausible explanation. That great quantities of complement are required in serious cases will be better appreciated if we consider that not only the ferments need complement to kill and dissolve the germs, but that also the soluble digestive split products, produced during this dissolution of the germs, have a great affinity for complement and absorb, or "fix," it eagerly. I have shown this to be a fact in a former communication.[2] Whenever these split products begin to glut the blood stream during the course of infectious diseases, an event signalized by the increase of acidosis during the height of the specific symptoms, the danger to life grows as the depletion of complement continues and death must ensue when all complement has vanished, no matter how much antiserum is injected. Practical experience supports this statement. The highly gratifying results obtained frequently under such circumstances with sufficiently large doses of sodium bicarbonate are not without significance and suggest that this drug may, perhaps, serve as a complement or protect the natural complement from destruction.

To save these children and to stay the needless deaths, we must supply complement. It should not be difficult to ascertain its exact chemical composition for those who are so fortunate as to have a good equipment and plenty of trained assistance at their disposal.

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30 No. Michigan Boulevard.

CANCER IS A BLOOD DISEASE AND SHOULD BE TREATED AS SUCH.

By ROBERT BELL, M.D., F.R.F.P.S., Etc.

LONDON.

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THE letter of Dr. Seelye W. Little in the 22d of October issue of the MEDICAL RECORD, the article on the 29th of the same month by Dr. C. Everett Field, and that bearing the date of November 5 by Dr. George Stuart Willis, have brought to the surface of my mind a number of convictions I have long held, and which I should like to transmit across the Atlantic for the consideration of the many friends I feel proud to possess in the United States.

It is twenty-seven years ago since I commenced in earnest to devote myself to the solution of the cancer enigma, and it has been my good fortune to have it in my power to avail myself of ample opportunities of studying the disease in its various aspects. I trust, therefore, the following remarks may be looked upon in a sympathetic and friendly manner, equal to that in which they are offered, either for acceptance or refusal as the case may be.

During this period it has been my endeavor to take advantage of every new so-called remedy for this, hitherto intractible disease, with the result that from my standpoint the great majority of those so-called "cures" are founded, if they have any tangible foundation at all, upon a basis too flimsy to support the recondite and vital question which is at stake.

I am sorry I have not had the opportunity of reading the criticized article, as a whole, which Dr. Seelye Little recommends one to do. Yet taking Dr. Little's letter and Dr. Everett Field's article together, I think I can understand to a certain extent the varying conclusions he has arrived at with reference to the effects of radium and *x*-rays in the treatment of cancer. But with reference to the treatment of cancer by local measures, it beats me to comprehend, for a moment, how one can expect a cure of a blood disease, which cancer undoubtedly is, by attacking its local manifestation, and leaving the source of the disease to take care of itself, without any effort being made to improve the quality of the blood stream. For, depend upon it, every cell of the body is affected, and has been affected for a long period prior to the appearance of the local outcrop, or how does one account for the cachexia, malnutrition, and I may add rheumatism,* which manifest themselves before the neoplasm of cancer asserts its presence? This latter, as a rule, takes its seat in an organ whose periodic activity is, for the time being, in abeyance; and this is supplemented by a deprived condition of every cell of the body for these are, *pari passu*, deprived of the disease-resisting power which the normal cell possesses, as in the mamma for example; or, in the event of an injury or prolonged irritation, when the cellular tissue in these penalized localities becomes so demoralized that it ceases to recognize physiological control, and establishes a colony of rebel cells within a degraded environment, which to some limited extent remains loyal to physiological law. Yet the tissues continue in a precarious position, and so are liable to become a prey to a rapacious neighbor.

From my standpoint cancer is the outcome, in every instance, of prolonged chronic autotoxemia, and a vitiated blood supply not only acts deleteri-

*The blood picture of rheumatism bears a close resemblance to that of cancer, and, so far as my extensive experience teaches me, a rheumatic diathesis is in existence in those who become the victims of cancer. So impressed have I become by this coincidence that, when there is present a doubt as to the diagnosis, I am inclined to hold that if rheumatism is absent in the subject under examination, the case is not malignant; and vice versa.

ously upon the nervous apparatus, but coincidently with this, gives rise to inefficiency of the secretion of every endocrinic gland in the body, the natural consequence being an absence of healthy cell metabolism: and the dire disturbances which inevitably follow.

But to return to the important contents of Dr. Little's letter, I do not for a moment agree with Dr. Wood's assertion that the "increase in the number of deaths from cancer" is even "partly due to improvements in methods of diagnosis." Moreover I deprecate most emphatically Dr. Wood's proposal to cut into a tumor, for the purpose of diagnosis, as no implicit reliance can be placed upon such expedients. Besides it is a mistake to incise a malignant or even a benign tumor.

If one's tactus eruditus and consideration of the concomitant symptoms are found to be unreliable, then any remaining doubt may be dissipated by taking a microphotograph of the blood.

Referring to Dr. Little's remarks, *re* the "false hope" paragraph in the criticized paper, I venture to ask why there should exist a *false* hope; why not an *unqualified* hope if sole reliance is not placed upon treatment of the local outcrop of the disease, which only occurs in a locality in which the cellular tissue has been yet further devitalized by a depletion of normal vital resistance to disease, either by a reduction due to a physiological cause, or an injury or prolonged irritation, such as, for example, a broken down tooth, supplemented in many instances by excessive smokings; or prolonged irritation of the stomach due to chronic acid dyspepsia; or again, to the chronic retention of hardened feces in the rectum.

Would it not help matters materially if we would also adopt measures, such as a reformed diet, and the closest attention to the sanitary condition of the colon, with a view to removing the toxic condition of the blood, which, I am convinced, is the potent factor in the pathogenesis of cancer? I would also direct attention to the fact—and I use this word advisedly—that adenomata of the mamma, and also chronic mastitis, in by far the largest majority of instances are due to the repeated monthly reflexes upon this gland, for which diseased ovaries—even though of a comparatively trivial nature—are responsible. For we know that, though these adenomata are benign in the early stages of their existence, when they are readily curable, yet later on they are liable to become malignant when autotoxemia is coexistent. Moreover they are not infrequently wrongly diagnosed as malignant, and remorselessly operated upon. I can recall numberless instances when I have had the great satisfaction of rescuing the innocent mamma from the cruel knife. Hence I am inclined to conclude that the highly favorable "Statistics of Operations for Mammary Cancer" published in the Nov. 5 issue of the MEDICAL RECORD by Professor Forgue of Montpellier are to a great extent due to mistaken diagnosis, which, of course, is quite excusable. And I trust Professor Forgue will not deem it unkind of me to express this candid opinion which represents one of the fruits gathered from fifteen years' experience as an operating surgeon; while my subsequent experience during the past twenty-seven years is what I have endeavored to express in the foregoing paragraphs.

I trust I may, in conclusion, be permitted to append some evidence of the benefit derived by treating victims of this inveterate scourge upon rational lines as opposed to those operative measures which hitherto have proved a colossal failure.

CASE I.—In December, 1907, I was asked by a banker if I would agree to take under my professional care the wife of one of the bank's officials, who had been dismissed from one of the largest London hospitals as incurable. Before agreeing to this proposal I wrote to the registrar of the hospital, so that I might become acquainted with the history of the case, and in reply obtained the following information:

"December 7, 1907.—A laparotomy was performed and the following diagnosis given: Operation. Large malignant mass occupying posterior wall of cardiac end of stomach. The mesentery contained calcified (old tuberculous?) glands. The patient recovered well from the operation and when discharged was able to take some food by the mouth. She had, however, lost 2½ lbs. in weight. Weight on discharge, 75½ lbs."

The actual loss of weight, however, was 32 lbs. I may add that on her discharge I learned she was given two months to live. With such a history it was with considerable hesitation that I undertook the case.

As there were present pronounced symptoms of hypothyroidism, I gave 5 grs. thyroid extract three times a day, a diet composed of the juices of uncooked vegetables, fruit, and milk switched up with white of egg. Careful attention was also given to the daily *complete* action of the colon.

Under this regimen the patient gradually lost the severe pain she had been enduring for weeks past. The diet agreed with, and nourished, her to the extent that she gradually put on weight, the growth simultaneously slowly disappearing, and within eight months she had regained the 32 lbs. she had lost during her illness, when there remained no evidence of even a trace of the disease in existence. The last news I had of her was that she was pregnant and that she was in excellent health.

CASE II.—The following case came to me from another of our great hospitals. It was that of one of the nurses who had been operated upon for the removal of a scirrhus of the right mamma, which semed to do well for eighteen months, when a hard mass appeared under the clavicle of that side. She thereupon returned to the hospital and saw the surgeon who had operated, when she was told that the new growth was carcinoma, and that nothing more could be done for her, and that she should go home and await the end. This was six years ago, and she is now perfectly well, having recovered her health by means of a reformed diet, careful attention to the daily complete evacuation of the colon, supplemented by one thyrogangloid palatinoid three times a day. (Each of these contains extract of thyroid, gr. ii, and extract of the solar plexus, gr. iii.)

CASE III.—The next case was that of a member of the London Fire Brigade, who had been in a most unsatisfactory state of health during the previous four years, when he had upon two different occasions been laid up with an attack of jaundice, and had off and on suffered from attacks of intense pain. He was admitted to another of our well known hospitals. A laparotomy was done, when it was ascertained he was suffering from cancer of the pancreas. He was discharged from the hospital when the wound had healed, and was given two months to live; at least I was told this was the prognosis. He was brought to me at the Battersea General Hospital on the following day, when he weighed 112 lbs., his normal weight having been 154 lbs. (both naked). Moreover, he was in great pain. He was put upon an uncooked fruit, vegetable, and milk diet; while his colon was thoroughly emptied every day by means of an enema of water at bloodheat. At the expiry of the two months he had been given to live he was free from pain and had begun to put on flesh. He came under my care early in April, 1918, and on the following 1st of October he had regained all but 5 lbs. of his normal weight, and was enabled to resume his duties in the fire brigade. Since that date I have

seen him more than once, and know that he had regained his normal weight and is in daily work at his brigade.

CASE IV.—One more example from another of our well known hospitals, this being that of a workman in Woolwich Arsenal who had been admitted after a long period of ill health said to be due to dyspepsia; so much so that for a number of years he was hardly able to do two consecutive days of work. He had lost 28 lbs. in weight and was quite worn out by his suffering. He was, therefore, admitted into the above hospital and subjected to a laparotomy, when it was discovered that the disease was cancer of the stomach. After this the wound was closed, the case being considered hopeless, and he was discharged from the hospital as incurable. He then came under my care and was treated on lines similar to those above mentioned as to diet and regimen with the addition of bise dia 3i and elixir of takadiastase 3i during meals three times a day. Within a year he was quite recovered and able to resume his work at the arsenal, where he is still employed.

I have selected the above cases purposesly, as there can be no possible doubt regarding the diagnosis, and I may add there is no doubt as to the results obtained.

15 HALF MOON STREET.

CORYZA IN INFANCY AND CHILDHOOD.

BY JOSEPH H. MARCUS, M.D.,

ATLANTIC CITY, N. J.

PEDIATRIST TO THE BAMBERGER HOME; PEDIATRIST TO THE JEWISH SEASIDE HOME; AND TO THE ATLANTIC CITY HOSPITAL.

THE infant is born with healthy mucous membranes, and the foreign, noxious principles entering the body by means of the inspired air require a certain length of time in order to render the tissues susceptible to disease. Naturally the periphery of the mucous membrane, the nose, is the first tissue to become involved, since it is primarily exposed, and so making the occurrence of coryza particularly common in infancy and childhood. The bronchi and lungs remain uninvolved, and are capable of resistance for a longer period, because they are more distantly situated. Acute coryza, acute rhinitis, or "cold in the head" is a catarrhal inflammation of the mucous membrane of the nose, which may extend to the tonsils, pharynx, larynx, trachea, and bronchi, and also may involve the accessory sinuses and the middle ear.

Etiology.—Although popularly supposed to be the result of exposure to cold or wet, the prevalent view is that the vast majority of common colds are caused by infection with microorganisms, and that it is, indeed, an infectious fever. There are many factors that act as predisposing causes towards the occurrence of an attack of coryza such as an hereditary predisposition, seen in children who are particularly subject to repeated colds, and in whom the tendency to take cold cannot be explained on any other basis. In this class there are no faulty hygienic surroundings, undue exposure to cold, contagion, or irritants of any type. An acquired predisposition to a cold is very often met with in children who are subjected to certain errors in hygienic management. Children of this type do not get enough fresh air, and are kept indoors much of the time. They live in overheated rooms and sleep in rooms with closed windows. Many fear "draughts" and cannot tolerate open windows, but are content to live in a stuffy and polluted atmosphere. An abundant supply of fresh air (and sunlight when procurable) is a very valuable disinfectant. As St. Clair Thomson has remarked, the removal of this "air sewage," which gives a close, stuffy odor to a room, by means of efficient ventilation, is wellnigh as important as the removal of other sewage by good sanitary arrangements. These faults in hygiene cause the nasal mucous membrane to become more susceptible to the infectious organisms. The healthy nasal mucous membrane rapidly destroys or renders inert the majority of the invading germs, and harbors only a small portion of them in the anterior portion. Children suffering from chronic rhinitis, adenoid growths, or subacute or chronic tonsillitis are particularly liable to colds. Mechanical, chemical, or thermal irritations often furnish the cause. As examples may be mentioned trauma, the breathing of formaldehyde gas or iodine fumes, and dry and overheated air. Frequent changes of temperature, exposure to cold winds, sitting in a draught, exposure to dampness, falling in water, or otherwise becoming chilled, insufficient bedclothing at night, all act injuriously.

Accumulating evidence has firmly established the contagiousness of most colds, and the clinical course pursued by typical common colds is of such a character that there can be little doubt that they represent bacterial infection. We have further evidence from the fact that the coryza is a prominent symptom of several specific infections, such as influenza and measles. The normal mucous membrane is resistant to actual infection, and some condition that tends to lower the resistance is required for infection to occur. A great variety of organisms have been demonstrated in the nasal mucous membrane among which one can number the staphylococcus, streptococcus, *Micrococcus catarrhalis*, influenza bacillus, all of which have been found in the nasal secretions of the ordinary cold.

Symptoms and Course.—Redness and swelling of the nasal mucous membrane with a sense of fullness, and dryness in the nostrils accompanied by a difficulty in breathing, are the usual primary symptoms of the simple catarrhal rhinitis. In the course of a few hours there is a copious discharge, which at first is thin and watery, but later becomes mucopurulent, and in the severe cases seen in infants there may be a profuse purulent discharge. There is usually a slight rise in temperature; in infants the temperature may be high, while in older children there may be little or no febrile disturbance. Although the general symptoms are often slight, there is ordinarily a very evident sense of discomfort, with loss of appetite and general malaise, of a mild nature. In some cases the infants or young children are restless and irritable, do not take the usual periods of rest and sleep, failure of appetite is present, as well as a slight, annoying cough. In the more severe types there may be involvement of the lacrymal ducts, with slight or marked redness of the conjunctiva, lacrymation, and photophobia. In very young infants, coryza may become exceedingly menacing, with the temperature reaching a height of 104° to 105° F., accompanied by marked disturbances in nutrition. In consequence of the very narrow nasal passages, the nasal breathing may be greatly interfered with, and a complete stop-

page in the newborn may lead to a dangerous asphyxia. The nasal obstruction in nursing infants produces embarrassment in the act of feeding, which process is interrupted frequently. This difficult nasal breathing constitutes such an impediment to nursing that every few minutes the tortured infant releases the nipple in order to again laboriously draw some air into its lungs by way of the mouth. The sleep of the infant is also disturbed by laborious breathing which causes great fatigue, and often suffocative attacks. In severe cases there may be loss of taste and smell.

In late infancy, as well as those of older years, coryza is attended with manifold dangers. The pharynx and the tonsils quite regularly participate in the inflammation, which may cause pain on swallowing, and from here the process is apt to extend to the Eustachian tube and the tympanum, causing deafness or earache. Extension through the lacrymal ducts may give rise to a conjunctivitis. Otitis media is an exceedingly frequent complication, and should be constantly watched for, by repeated examinations with the otoscope. The anatomical structure of the Eustachian tube at this period of life makes the occurrence of otitis media more liable. The catarrhal inflammation is apt to extend, and often leads to croup, bronchitis, and bronchopneumonia. Other complications are cervical adenitis and retropharyngeal or peritonsillar abscess.

Diagnosis.—The diagnosis is usually readily made. It is sometimes difficult at first to decide whether the appearance of a rhinitis is primary or whether it is the prodromal symptom of measles or influenza. In measles and influenza the constitutional symptoms are more severe in proportion to the nasal manifestations than they are in the common cold. In cases where the discharge is unilateral, purulent, and bloody, a foreign body is usually present. A very purulent discharge in the newborn may be of a gonorrheal nature. Of great importance is the differentiation of a simple rhinitis from nasal diphtheria, on the timely recognition of which the life of the patient may depend. In nasal diphtheria there is often a profuse discharge which is frequently blood-tinged; it usually begins as a violent coryza, and even after careful examination with a speculum often no formation of membrane can be distinguished, which is usually present in the posterior part of the nares. One must bear in mind that primary nasal diphtheria is comparatively frequent in young children, and whenever a blood-tinged discharge is present, or whenever the nasal discharge is of more than a week's duration, the possibility of diphtheria should be suspected. Every case of rhinitis accompanied by an increase in temperature, excessive purulent discharge, and markedly disturbed general health is suggestive of diphtheria and requires a bacterial examination. Lues is also suggested by the persistence of the nasal discharge, and its presence can be confirmed by other manifestations of syphilis.

Prognosis.—In healthy children the prognosis of these infectious colds is usually good, as regards a rapid termination in an uncomplicated recovery. Older infants may perish from an otitis media and bronchitis, especially those suffering from malnutrition and disturbed digestion. Dunn has mentioned the death of puny, ill-nourished infants, as a result of a simple, acute rhinitis with occlusion of the nares. Any coryza in an infant should not be regarded lightly if the symptoms persist after the fourth or fifth day, and other organs such as the ears or bronchi become involved.

Treatment.—In the treatment of acute coryza a valuable procedure is a day in bed at the very outset. The rest thus secured combined with such household remedies as hot gruels, mild purge, and mustard foot-baths will often check the progress of the disease. Young children with acute rhinitis should be kept indoors, in a well-ventilated room, at an even temperature of approximately 68° F. The mild forms of nasal catarrh in infancy and childhood are self-limited as to the duration, and simple cleanliness with nursing will in most cases answer in the treatment of the disease. It is well to reduce the quantity of food, especially in infants. There are times, however, when feeble infants will not take enough milk, owing to the nasal obstruction. In such cases, milk should be given with a spoon. When there is so much nasal interference that respiration or sucking is interfered with, a few drops of adrenalin solution, 1 to 1000, diluted with saline solution, should be instilled into the nostrils with a medicine dropper. An ointment of lanolin is the best protection against excoriation of the nasal orifices and upper lip from the discharge. Frequently the dried crusts or the discharge may be removed by means of a pledget of absorbent cotton, while the sneezing that may be thus produced often promotes the discharge of the secretion. The instillation of a few drops of lukewarm olive oil containing one-half to one per cent. of menthol is of benefit; this is best given with a pipette, and with the infant or child lying on its back, with the head extended. Sprays and douches are not applicable to infants and young children, on account of the resistance made by these patients, and the danger of carrying the infection into the Eustachian tube. Where it is possible in older children, a mild antiseptic solution, such as Dobell's solution, is all that is called for. A useful remedy is the inhalation of mentholized steam. A few crystals of menthol are dropped into a jugful of hot water, and the patient then breathes in the medicated steam through the nose. In infants a solution of resorcin in olive oil (5 grains to the ounce) may be dropped into the nostrils, after removing the discharge and cleansing the nasal passages by carefully mopping with cotton or gauze. Quinine is useful in infectious colds, from one-half to two grains being given three times a day, the dose being regulated according to the age of the child. A useful drug in lessening the nasal secretion is the tincture of belladonna, which is somewhat more advantageously administered when combined with camphor and sugar of milk in the form of tabellæ. If the throat is drawn into the picture, a small dose of the tincture of iron chloride, two or three minims, combined with glycerin may be given every three hours. If the ear drum shows a redness with bulging, we may temporize, and if there is reason to believe that pain is present, a drop or two of warm oil of hyoscyamus instilled into the ear twice a day will often give relief; or we may use as ear drops carbolic acid 10 grains, in two drams of glycerin. If an increase in temperature

is not present, the open air is not contraindicated. During the acute stage, precaution must be exercised regarding the bath, and in cases where the nursing is unreliable the bath had better be omitted. Recent observers have reported good results from the use of hexamethylenamine in common colds.

Prophylaxis.—The most important measure in prophylaxis against acute rhinitis is the prevention of contagion, and those preventive measures are of even greater importance in children than in adults. Children are more susceptible to colds than their elders, and are apt to suffer severely; while a simple cold, of little moment in adult life, is often quite a serious illness in an infant. Because of this fact, no one who is suffering from a "cold in the head" should be allowed anywhere near a nursery. Prevention of colds is better and easier than cure. Fresh air is of prime importance, but other rules of daily hygiene, such as baths, exercise, and suitable clothing, should certainly receive due attention. The faulty hygienic surroundings spoken of under the heading of Etiology, should be corrected. Children should be encouraged to go outdoors daily, unless the weather is especially bad; they should live in rooms with an approximate temperature of 68° F., and should sleep in well-ventilated rooms. The coddling and pampering of delicate children is somewhat difficult to overcome. These children should be sponged with cold water, especially about the chest, back, and neck, immediately upon rising. Chest protectors should be used, and the underclothing should be woolen both in winter and summer; the very lightest weight should be used in the summer and medium weight in the winter. A child who suffers from adenoids is peculiarly liable to catch cold, and the improvement in this respect which follows the removal of the adenoids is often remarkable.

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SOME SURGICAL EXPERIENCES BEFORE THE DEVELOPMENT OF THE HOSPITAL.

By T. M. McINTOSH, M.D.,

THOMASVILLE, GA.

In May, 1874, after my first course of lectures, I made my first surgical operation, this being a cataract operation on "Aunt Mariah," a former slave and family servant. For practice I had operated on killed dogs and cats. Dr. B. W. Daniel, my preceptor, an accomplished and educated physician, whose plantation adjoined my father's, gave interested and approving assistance. We rode horseback eight miles into Jefferson County, Florida, where "Aunt Mariah" lived. My father, with parental fondness, accompanied us. The operation was done on the piazza of the log cabin, with all the details of careful cleanliness then in use. The knife was a Beer's triangular. The eye ball, after placing the lidholder, was steadied by pressure of my forefinger on the nasal side. (This suggestions I had read as being less painful than the fixation forceps.) The incision was in the corneoscleral junction and, when complete, the pressure of the steadying finger on the eyeball brought out the lens in the capsule. There was no iridectomy. Daily visits were made for a week. The result was perfect.

This was the first cataract operation by extraction performed in this section, as those with cataract went to Atlanta, Savannah, or Baltimore to be operated upon. Dr. Brandon, of Thomasville, had done two operations, and Dr. Palmer, of Monticello, Fla., had performed one by dislocating the lens with a needle—"Couching." In all these there was loss of light perception from inflammation. Since that time I have done one hundred and fifty cataract operations. Fourteen cases were reported in the *Atlanta Medical and Surgical Journal*, 1880; one hundred and three in the *Atlanta Journal Record of Medicine;* the others have not been reported.

In November, 1881, Mr. W. of Baker County, with granular lids, which produced "pannus" and blindness in one eye, did not improve under the usual treatment. With a sharp curette the granulations were thoroughly scraped. The "pannus" rapidly disappeared and vision returned. Up to that time trachoma granulations had not been removed surgically as far as I know, though some years later they were treated by crushing with a special forceps.

In 1883, I trephined the mastoid for abscess of the middle ear, Mr. J. H., Metcalfe, Ga., being the patient. This, as far as I know, was the first operation of its kind in this section. Neither Dr. Brandon nor Dr. Bruce, of Thomasville, had attempted it. Dr. Bruce, however, had made many trephinings for skull fractures.

In December, 1883, the entire right superior maxilla with part of the anterior part of the left, was removed from Alice M., aged eleven, for fibrocystic tumor. During the operation the right carotid was compressed by the fingers of an assistant. The case was reported in *Atlanta Medical and Surgical Journal* and was illustrated with photographs taken before and after operation.

In 1909, Mr. N. S., Florida, brought his three months old child with complete cleft palate; the cleft being one fourth of an inch wide its entire length. With a long and strong bone forceps, both superior maxillæ were broken, and the cleft borders brought into contact throughout their entire length. The hare lip was operated upon at the same time. The result was satisfactory both as to lip closure and palate closure. Of hereditary interest, is the fact that when the father of the child was a small boy I operated upon him for hare lip.

My first herniotomy, for strangulation, was performed in 1878. Dr. E. R. Young of Metcalfe gave the anesthetic. A negro woman held the torch (not lamp) in the hut; it was night. Pans and towels I carried with me; water was boiled in kettles. The constriction was cut, and the bowels replaced. The sac was left *in situ.* Through and through interrupted sutures of silk closed the wound. A twisted piece of gauze was inserted the length of the incision under the skin closure to get healing by granulation from below. This was the procedure employed at that time, supposedly to give a firm scar to prevent hernial recurrence. In this case recovery was smooth. There was no recurrence and patient lived many years.

In early part of November, 1882, I saw Dr. S. who had had abdominal pain, swelling, and fever, for four weeks before I saw him. Fluctuation was evident in the lower abdomen, which I thought was

due to the presence of pus, and suggested opening the abdomen. There was objection on the part of attending physicians, they believing the fluctuation was due to ascitic fluid—a compromise was aspiration. A large amount of pus was withdrawn, which was followed by subsidence of the fever for a few days. Fever recurring soon, the abdomen was opened by incision; quantities of pus came away; after a few days a fecal fistula developed. The patient lived until December 14, finally dying from exhaustion. "The propriety of surgical intervention in acute suppurative appendicitis was first established by Willard Parker, of New York, in 1867." (American Text Book of Surgery, published in 1895.) Reginald H. Fitz (*American Journal of the Medical Sciences*, October, 1886) published an article entitled "Perforative Inflammation of the Vermiform Appendix with Special Reference to Early Diagnosis and Treatment." Therefore, it was but natural that my suggestion, in 1883, to open the abdomen for abscess was not at once accepted.

Mrs. J. W. B. of Mitchell Co., Ga., was delivered of her first child December, 1892. In April 1893, she came with complete inversion of the uterus. Failing to reduce by pressure upward through the vagina, the abdomen was opened, the intestine packed off, and, with combined pressure from below and dilatation and traction from above, replacement was accomplished. The operation was reported in the MEDICAL RECORD, New York, August, 1893. Reuben Peterson, Detroit (Reprint from *American Gynecology*, June, 1903, "The Conservative Operative Treatment of Chronic Inversion of the Uterus"), says: "Of fifteen cases treated by abdominal route, eight were successful; namely, those of Consertino (two), Courtney, D'Antona, Everki, Houlton, McIntosh, Thomas."

In 1884, Lucian H. of Decatur County came after a year of suffering with frequent urination and severe vesical tenesmus. He never had had any venereal disease. The small meatus urinarius was slit wide enough to admit a No. 30 French sound into the bladder. Irrigations and diuretics were of no value. The suffering was severe. Marion Sims had made a vesicovaginal fistula in the female for obstinate cystitis, the drainage giving rest to the bladder. Therefore, I drained the (male) bladder by perineal section and drainage by rubber catheter. The finger exploring the bladder gave no idea as to the cause of the cystitis. The bladder was drained for some weeks with marked relief. After the incision closed, there was much improvement, but not complete cure. At the present time, with electrical illumination of interior of bladder and other methods of diagnosis and treatment, the method of handling this case might have been somewhat different.

The writer has performed eighteen operations for stone in the bladder in patients whose ages ranged from 3 to 72 years, all lateral lithotomy, except one in a man aged 65, where it was necessary to make a superpubic opening, because the stone was imbedded behind an enlarged prostate and could not be dislodged by the finger in the bladder through the perineal incision, which was made first. This patient died on the third day after operation from urinary suppression, having had nephritis at time of operation. Another patient, aged 72, developed lobar pneumonia one week after operation, having apparently recovered from operation, and lived four days after the pneumonia developed. One patient was operated on twice, when 12 and again when 14 years old.

Dr. Brandon of Thomasville had operated by the lateral method five times for stone in bladder, twice on one patient, an elderly man. In 1879 I assisted Dr. A. P. Taylor of Thomasville in a Battey's operation, which I think was the first successful ovariotomy in this county. I began my work in Thomasville in January, 1878. Drs. Brandon Bruce, J. R. Reid, and T. S. Hopkins were the elderly and leading men. Dr. Taylor, some years my senior, was then successfully established. In this section were Jelks of Quitman, Burton and Lang of Valdosta, Bruce and Butts of Bainbridge, Hillsman, Alfriend, and Strother of Albany, Palmer of Monticello, Fla., Betton of Tallahassee, Fla., and Le Hentz of Quincy, Fla.

In 1899, the surgical practice from surrounding territory warranted my building a private hospital. Its capacity was fifteen patients. Up to the completion of this hospital, all my operations were done at the residences of the patients, widely scattered, of course, or in boarding houses in Thomasville. A year or two before, the ladies of Thomasville had established a few rooms as a "Charity Hospital." This "Charity Hospital" at the present time is the "City Hospital"; and through large private donations and endowments, and county and municipal monthly appropriations, it has become a splendid institution, with a plant and equipment costing $150,000 or more. The writer's hospital was the first privately and individually owned and operated institution in this section, or in South George or Florida. Within a few years, however, private and public hospitals have been established by individuals and groups of physicians in towns in all parts of South Georgia and Florida; and in them is done much excellent surgical work.

Looking back over my work done in homes and boarding houses, I think the results were as good as since the establishment of hospitals, but since the hospitals are here, we wonder how we did without them.

In these notes, largely relative to personal work, mention is made of cases that were of special interest to me, and in which procedures a little out of established rule were adopted, but from them you may get some idea of the "Development of Surgery in South Georgia."

PURPURA, WITH REPORT OF A CASE.*

BY J. HERBERT DAREY, M.A., M.D.,
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UNDER the general term idiopathic purpura are grouped three main classes of cases which are in reality not sharply defined from one another. These cases occur particularly in children and young adults, and nearly always show essentially normal numbers of blood platelets. Idiopathic simple purpura is purpura which may be accompanied by other skin lesions, but without other significant symptoms. Arthritic purpura is simply purpura

*Read before the Sioux Valley Medical Association at Sioux Falls, S. D., July 20-21, 1921.

with arthritic manifestations; other skin lesions are often present. The third class comprises those cases particularly described by Osler in which purpura and the other various cutaneous lesions of the erythema group occur, combined with visceral disturbances and often arthritis. When purpura is combined with colic, it is usually spoken of as Henoch's purpura. These three forms of purpura are closely related, and may possibly be various forms of one disease. It is not known exactly how the purpuric lesions and the associated skin lesions are produced in idiopathic purpura. It seems probable, however, that some change occurs in the small bloodvessels, increasing their permeability to the constituents of the blood. This change in the bloodvessels may occur in many parts of the body, but each lesion is to be considered as a focal one. It has been suggested, and seems rather logical, that an anaphylactic reaction is responsible for the symptoms of idiopathic purpura. Johannessen believes that idiopathic purpura is always associated with some infection, and that the symptoms are of an anaphylactoid nature. Positive evidence, however, is lacking. It is probable that the cause of idiopathic purpura is not the same in all cases. For example, an infectious process sometimes appears to be present, even though no organism can be found. In some cases absence of fever seems to be a striking feature, and in these cases it would seem to be necessary to account for the anaphylactoid symptoms in some other way, as by profound alteration of the protein metabolism. In one case Esdall found a markedly increased excretion of nitrogen, particularly at the time of a visceral crisis. The blood platelets are much more numerous than in purpura hemorrhagica. Usually the platelets are normal in number, and they are often increased when anemia ensues. The other morphological elements of the blood show no great deviation from the normal. The red cells in simpler cases are unaffected. Occasionally they may be reduced, and give a picture of a simple chronic or post-hemorrhagic anemia. The white cells in the milder cases are not increased; in cases of arthritic purpura they are sometimes slightly increased and rarely reach 15,000. In the severer cases, with abdominal symptoms, the count is usually between 9000 and 14,000; but cases with higher counts even 35,000 are not so rare. The increase of the white count is due particularly to an increase of the polyneuclear neutrophiles. The blood in cases of idiophathic purpura sometimes has a slightly prolonged coagulation time. Delayed coagulation, however, is not the rule.

The skin lesions in idiopathic purpura do not necessarily differ from those in purpura hemorrhagica, or in simple symptomatic purpura. Petechiæ are rather less common than in purpura hemorrhagica. Purpura of mucous membranes of the mouth is common in purpura hemorrhagica, and may indeed be the only hemorrhagic lesion present; purpura of the mucous membranes seldom occurs in idiopathic purpura, and then only when purpura is present elsewhere. A further difference in the skin lesions of the two conditions is that in the idiophatic form the purpuric lesions are not infrequently elevated, due to an associated urticaria or edema. This very rarely occurs with purpura hemorrhagica. Urticaria is seen particularly in the severer and more chronic forms of idiopathic purpura. Urticaria and purpura may occur, as Pratt has noted in four forms: (1) Simple slight elevations of purpuric spots (2) hemorrhage into definite urticarial wheals (3) a simultaneous outbreak of urticaria and purpura (4) purpuric attacks occurring before or after the appearance of urticaria. The edema which occurs in these cases is of the angioneurotic type. It is usually transitory, and often localized in the hands and face. Erythema of various types is also associated with idiopathic purpura. It is rare in purpura hemorrhagica.

Idiopathic simple purpura is the mildest form of the disease. It is to be diagnosed only when other diseases and toxic conditions are ruled out, and when the blood shows some of the abnormalities associated with pathologic hemorrhage. Hemorrhage into the skin is the only evidence of the condition. The purpura usually manifests itself quite suddenly, and in most cases is limited to the lower extremities, though it may occur on the forearms as well. Lesions may occur on other parts of the body. One group of lesions is commonly followed by another. The condition usually lasts about six weeks, though it may be of a shorter duration. Much more rarely it persists for a year or more. Chronic cases occur, which have recurring crops of purpura. In the mild form of idiopathic purpura, there is rarely any symptomatic disturbance though mild malaise and slight fever occasionally occur.

Arthritic purpura (purpura rheumatica) is characterized by multiple arthritis with purpuric eruptions, which are commonly associated with urticaria, erythema, and edema. Pratt and Lavergne have summarized our knowledge of this condition. This disease usually lasts about as long as simple idiopathic purpura. Fever is common at the outset. It is seldom as high as 102° or 103° F. Sore throat is also frequent with the onset of the disease. The joint symptoms are more prominent than the purpuric lesions, and it is on their account that the patient usually seeks relief. The joint symptoms consist of pain, swelling and tenderness. Several joints are usually affected, especially the knees and ankles. There is often also a general soreness in the muscles, and even a definite polyneuritis has been described. The joint symptoms usually occur before the purpura, but may develop after it appears. Arthritic purpura resembles ordinary rheumatic fever, plus the purpura. In arthritic purpura, however, the joint symptoms are usually mild, the fever slight, and endocarditis, so common in rheumatism, rarely occurs. The purpuric eruption recurs several times, typically associated with urticaria and erythema. The purpura usually appears first on the legs, as in simple purpura. Osler has emphasized the fact that cases with the erythema group of skin lesions may have visceral manifestations, particularly abdominal and renal, apparently dependent upon changes analogous to those seen in the skin. The visceral manifestations may not occur, however, in close relationship to the skin lesions. In fact they may be observed years before any skin lesion becomes apparent. Henoch in 1868 first called attention to the fact there were

cases with severe abdominal pain associated with purpura. This form is known as Henoch's purpura. In Pratt's series of Henoch's purpura, urticaria occurred in 30 per cent., erythema in 15 per cent., and edema in about 35 per cent. of the cases. The severe abdominal symptoms usually last only a few days. The illness, as a whole, usually lasts about a month. The onset resembles that of arthritic purpura, but abdominal symptoms soon appear, and dominate the picture. The abdominal symptoms, due to varying degrees of dilatation, exudation, and diapedesis into portions of the gastro-intestinal wall, consist of severe pain, of a colicky nature, which persists for several days. The pain is often general, but frequently localized about the appendix or umbilicus. The intestines become locally distended, so that a condition similar to appendicitis is produced. The walls of the intestines become edematous, or markedly infiltrated with serous, or sero-hemorrhagic fluid, being often of the size and consistency of a rubber garden hose. Such a process produces tenderness, spasm, and colic. It may produce obstruction, or intussusception. Spontaneous recovery, however, is the rule. Constipation may occur, though diarrhea preceded by constipation is more common. Blood in the stools occurs in about 50 per cent of the cases. Nausea and vomiting are common. Manifestations of idiopathic purpura, or of the erythema group often occur long before the abdominal pains. They may occur also months or years afterward. There may also be other visceral disturbances, as those of the kidney. Signs of acute nephritis are often present. A mild hematuria may persist for some time after the skin lesions have disappeared. Osler and Christian have pointed out the seriousness of the kidney lesions, though the latter remarks that these are seldom followed by chronic nephritis, and hence cannot be counted as true lesions of the kidney. Uremic symptoms may develop. Cases of idiopathic purpura may become exceedingly chronic.

Before the diagnosis of idiopathic simple purpura is made, idiopathic or symptomatic purpura hemorrhagica must be excluded. Serum disease which may closely resemble arthritic purpura, is easily diagnosed by the history of previous serum administration. Cases of idiopathic purpura and allied exudative erythema presenting abdominal crises are to be distinguished from various acute surgical conditions of the abdomen. When purpura, urticaria or edema are present, there is no difficulty in the diagnosis; it is only when these are absent that there may be some trouble in making a differential diagnosis. In children with colic and fever, purpura should always be thought of, and the skin carefully inspected for traces of purpura. Fever, leucocytosis, local tenderness and spasm may make the case closely resemble appendicitis, intussusception, etc.

The prognosis for life in idiopathic purpura is invariably good. In cases with visceral crises the prognosis is not so good. Death in 5 per cent may occur from kidney disturbance, and more rarely from abdominal or brain lesions.

There is no particular treatment for idiopathic purpura. The treatment should be entirely symptomatic. Rest in bed is desirable for all but the mildest cases.

The case I have to report is that of G. T., aged 16, female, a high school student.

On September 23, 1920, I was called to see the patient, whom I found covered with purpuric blotches on body, arms, and legs. Fingers were swollen and stiff. The ring finger of right hand was so swollen that a ring dented the flesh, and could not be removed. There was edema over the insteps of both feet. Soles of the feet and toes were swollen. Pains in the muscles and tonsils. Patient comes from healthy parents; gives a history of ordinary children's diseases, scarlet fever, and light attacks of rheumatism. The purpuric blotches would appear suddenly, last a few days, and disappear. They appeared in successive crops.

October 10, 1920.—Patient no better; very bad last night. Mucosa of mouth and gums swollen. Urine examined; acid, sp. gr. 1016. No albumin or sugar; a few hyaline tube casts.

October 11.—Blood examined. Decrease of red cells; increase of white cells. Referred to Dr. B. Meade Bolton, pathologist of the Samaritan Hospital, for blood count. He reported: Hemoglobin, 60 per cent.; red cells, 3,576,000; white cells, 10,000; small lymphocytes, 12 per cent.; large lymphocytes, 3 per cent.; large mononuclears, 17 per cent.; transitional, 1 per cent.; polynuclear neutrophiles, 66 per cent.; eosinophiles, 1 per cent.

November 19.—Dr. Bolton made another blood count, reporting as follows: Hemoglobin, 70 per cent.; red cells, 4,272,000; white cells, 6,600; small lymphocytes, 18 per cent.; large lymphocytes, 6 per cent.; polynuclear neutrophiles, 67 per cent.; eosinophiles, 1 per cent. Patient is greatly improved; practically well; going to school right along. I put the patient on a rheumatic mixture to relieve the pains in muscles and joints. Also liquor arsenicalis ♏v, increasing to ♏x t.i.d. On October 12 I put her on extract of red bone marrow three times a day, to increase the number of red cells. It acted very efficiently, as Dr. Bolton's second report shows. I also prescribed aromatic sulphuric acid, ♏x t.i.d., to diminish the minute capillary hemorrhages that produce the blotches, and extract of hydrastis canadensis, ♏x t.i.d., to correct the lowered tone of the mucous membranes. The patient made a complete recovery.

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AN ATYPICAL EXANTHEM.

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IN the early part of 1920 there have come under my observation several cases of fever in children associated with a maculopapular rash which could not clinically be classified as belonging to any of the well-known acute exanthemeta. It is my object to describe these cases so that others who may have had similar cases may be stimulated to record their experiences, in order that it may be determined whether we are dealing with an atypical form of one of the known acute exanthemata or perhaps with something new.

Case I.—D. G., female, age fourteen months, with a negative family and previous history, became sick May 2, 1920, with fever and restlessness. She vomited once during the first day of illness, but did not vomit again. The bowels were regular, of normal color and consistency, except once after a dose of castor oil. The physical examination was entirely negative but for a slight congestion of throat and soft palate. The temperature at the onset was 102.5°, and fluctuated between 102.5° and 101° for the ensuing three days. On the morning of the fourth day the temperature was 100° and did not rise that day. About this time there was noticed a faint macular rash over the abdomen and buttocks. These macules were about 0.5 cm. to 1

cm. in diameter, discrete, and became slightly papular and more numerous during the following two days, appearing on the thighs, chest, shoulders and a few on the neck. The rash began to disappear on the third day, so that within four days after its first appearance it had almost entirely disappeared. The maculopapular rash was pinkish to red in color and the lesions fairly regular in size and shape, being more or less round or oval. The size of the individual lesion did not vary much except that it became reddish instead of pinkish, and slightly papular instead of macular, as at the onset. The mucous membranes were negative except for slight throat congestion on the first two days. There was no desquamation, no itching, no gland enlargement.

The other two cases occurred in children somewhat older, one in a child, R. S., twenty-six months of age, also with an acute onset and fever for three days followed by a rash lasting about three days. There were no distinctive physical signs anywhere, nor were there any disturbing symptoms or prostration. The third case, B. W., age two years, behaved in a similar manner. There was no noticeable prostration with these attacks and no complications. The urine was negative in the three cases and the blood was normal in two cases and not examined in one.

The ordinary acute exanthemata were considered but could not be diagnosed, at least clinically. Measles was eliminated because of the temperature curve in relation to the appearance of the rash, the absence of catarrhal symptoms and bronchitis and the absence of Koplik spots and desquamation. Scarlet fever was considered, but the late appearance of the rash, together with the fact that there was no throat involvement, no desquamation, no albuminuria, no noteworthy adenitis, speaks against this disease. Against German measles there is the marked febrile reaction for three days prior to the appearance of rash, the character of the rash and the absence of glandular enlargement. The possibility of a drug or food rash was considered also, but no drugs were given, at least in the first two cases. The absence of gastrointestinal symptoms, the uniformity of the rash and its appearance after subsidence of fever speaks against a food rash.

Two more cases, one in a female child, age nineteen months, and one in a male child, age twenty-three months, were seen in the early summer of 1921. No drugs were given in either of these cases and the blood was normal in both of them.

Since the preparation of this case report three articles appeared in the recent literature which describe a very similar if not identical symptom complex. Westcott describes a larger series of cases and calls them "Pseudo Rubella." (Thos. Westcott, "Pseudo Rubella," *American Journal Medical Sciences*, Vol. 162, No. 3, p. 367, September, 1921.) Levy (Levy, David J., "An Eruptive Fever of Unusual Characteristics in Infancy and Early Childhood," *Journal American Medical Association*, Vol. 77, No. 23, p. 1785, Dec. 3, 1921), in his report comprising about thirty cases, is inclined to consider it as atypical rubella rather than a new exanthem. Veeder and Hempelman (Veeder, B. S., and Hempelman, T. C., "A Febrile Exanthem Occurring in Childhood," *Journal American Medical Association*, Vol. 77, No. 23, p. 1787, Dec. 3, 1921) are inclined to consider this symptom complex as a definite entity. They include among their case reports a boy age ten, and they quote Zahorsky (Zahorsky, John, "Roseola Infantum," *Journal American Medical Association*, Vol. 61, p. 1446, Oct. 18,1913), who describes a very similar picture in 1910 and again in 1913 under the name of "Roseola Infantum."

It is evidently too early and the reports are too meager to enable one to decide whether or not these cases belong to a separate disease or are some atypical form of the well-known exanthemata. My own observations date back to the early part of 1920 and the limited number of cases observed made me hesitate to report them. However, with a view of at least contributing to the knowledge as to the prevalence of the disease in a geographical sense—none of these cases having been previously reported from New York—I am prompted to withhold publication no longer.

1220 GRAND CONCOURSE.

Medicolegal Notes.

Erroneous Instruction as to Physician's Duty to State Condition of Patient.—In an action by a physician for services rendered a decedent where the defense was negligence, the trial court refused to give an instruction requested by the plaintiff administrators that "it is the duty of a physician to disclose to the relatives of a patient who employ him to treat the case, when called upon by such relatives to state to them the true condition of the patient, to give them full, accurate and complete information as to the condition of the patient. If he should fail in this duty, and should inform such relatives that the patient was not in a dangerous or serious condition, when in fact and in truth such patient was in a dangerous and serious condition, the physician would be guilty of such carelessness and negligence as to preclude him from receiving any pay for his services in case of the death of the patient." The Oregon Supreme Court holds the instruction was properly refused, since it would have required the jury to return a verdict for the administrators if they found merely that the doctor believed the patient was dangerously sick, and, so believing, told the relatives he was not dangerously sick, even though they might also have found that the doctor exercised the very highest degree of care and skill in his treatment.—Kelty v. Fisher (Or.) 199 Pac. 188.

Right of Trial Court to Order Second Physical Examination of Plaintiff in Personal Injury Case.—The Indiana courts hold that a motion to require a plaintiff in a personal injury case to submit to a physical examination is addressed to the sound discretion of the trial court, and that the exercise of such discretion is reviewable on appeal, and correctable in case of abuse. They also hold that courts have authority to order more than one examination of such a plaintiff. The purpose of such an examination is to enable the courts to obtain, as nearly as possible, the exact and full truth concerning the matters in controversy, in order that they may bestow upon litigants equal and exact justice. A physical examination serves to promote this purpose by placing the parties on a more equal footing before the court or jury trying the cause as to the nature and extent of the injuries alleged to have been received. As stated in South Bend v. Turner (1900), 156 Ind., 418, "If a defendant must make his defense against the expert opinions of the plaintiff's chosen surgeons, without an opportunity of testing the verity of the basis for such opinions, he may be placed at disastrous disadvantage such as the law cannot and does not sanction." Affirming these principles in a recent personal injury case, the Indiana Supreme Court adds: "It is apparent that under certain circumstances a single physical examination may not fully accomplish, and possibly could not fully accomplish, the purpose stated above. Where such circumstances exist, the reasons which lead courts to assume authority to order physical examinations in the first instance afford ample justification for a further exercise of authority in that regard."—City of Valparaiso v. Kinney (Ind.), 131 N. E., 237.

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D'HERELLE'S PHENOMENON.

ONE of the most revolutionary discoveries of recent years in the domain of bacteriology is that of the so-called bacteriophages. Its significance, however, is much impaired through the fact that it is a more or less isolated form of behavior seen thus far only in a very restricted field. The first report on the subject goes back to 1917, when d'Herelle, of the Pasteur Institute, Paris, made a preliminary statement before the French Academy of Sciences. In June, 1921, nearly five years later, the discoverer summed up his experience with the phenomenon in question. His initial find was then stated as follows: the stools of an individual convalescing from dysentery were emulsified with bouillon and filtered through a Chamberland filter. A cloudy broth culture of Shiga's dysentery bacilli was added to this filtrate—10 drops of the latter—and kept in the incubator at 37° C. for 10 hours when the mixture was found quite clear with all of the bacilli dissolved. A drop of the clear culture was then introduced into a fresh culture of the bacilli and caused the solution of the latter as well. It was learned that this process could be kept up indefinitely. No progressive attenuation came about and after ten passages total lysis required but 3 or 4 hours. That which had happened was the destruction of the germs by a so-called bacteriophagic principle, unlike anything thus far known.

The work cut out by this discovery comprised variation of quantities used, tests with other bacteria, tests of other discharges from the bowels, modifications possible by physiochemical agencies. An attempt to bring the status of the experimentation up to date is found in an article in *Le Bulletin Médical* for January 14, 1922, xxxvi, 3, by Francon and Marquezy. This article is of considerable length and covers the accumulation of data with the interpretation and finally the practical application. Four theses are discussed as follows: the phenomenon is produced by the activities of a filtrable ultramicrobe; the latter belongs to the myxomycetes; the lysis is the result of a diastatic enzyme, and this lysis is autolytic and transmissible. These theses do not cooperate to build up a theory, but have been separately advanced and are in part antagonistic. D'Herelle styles the lytic organism *bacteriophagum intestinale* and to this organism he attributes many properties. It cannot be classed with any known microphyte or protozoon and d'Herelle makes no attempt to classify it. Salimbeni goes further and affirms the bacteriophage to belong to the myxomycetes and probably to the so-called thallophytes, the spores of which can traverse the porcelain filter. This organism secretes a diastase. Kabeshima goes still further and makes the entire phenomenon the work of an isolated diastatic enzyme not generated by microorganisms at all. This diastase acts as a catalyst. D'Herelle says of this view that the diastatic hypothesis may be correct but adds that the enzyme inheres in the lytic secretion of the bacteriophage. Finally the distinguished Bordet, who with Cinca has investigated the phenomenon, merely sums up the latter in the statement that the Shiga bacillus has a notable tendency to autolysis, so that the phenomenon, if the writer may be pardoned the simile, is not one of assault and murder, but of suicide. Naturally there is something in the environment which brings about the autolytic tendency. The entire process means at base a defence reaction, through which by steps as yet unknown the organism antagonizes the Shiga bacillus. This tendency to autolysis is handed down to the remote progeny of the Shiga organism like an old fashioned family curse. For a defense reaction there must be a definite mechanism and it is assumed that the body secretes some kind of militant product, but this is not necessarily a powerful lysin of diastatic nature nor a catalyst. Bordet merely assumes that the substance is furnished by the leucocytes, those natural defenders of the body against pathogenic bacteria.

It was stated not long ago that the phenomenon was peculiar to the Shiga bacillus, but it now appears that it has also been observed in typhoid and paratyphoid fevers, colipyelitis, and even in bubonic plague in man, besides promising well throughout animal pathology. Thus far the phenomenon is limited to diseases in which the intestine is primarily or secondarily involved in the morbid process, the stools being the natural vehicle of the bacteriophages. It is impossible in this place to discuss the probable influence of this discovery on such vast questions as diagnosis, bacteriotherapy, vaccinotherapy, and especially immunization to disease. The admixture of bacteriophages would soon vitiate germ cultures, and this may possibly explain extensive failure of results in certain strains of bacteria used for diagnostic reactions, immunization, and treatment.

THE HISTOLOGY AND EVOLUTION OF DEEP-SEATED ANGIOMATA OF THE NECK.

THE histological picture of deep-seated angiomata of the neck consists of alveolæ lined with pavement endothelium, but in the large lacunæ the endothelial cells may be wanting in spots or are completely absent. The blood filling these cavities contains fewer leucocytes than normally, a peculiarity encountered in angiomata in general.

he trabeculæ are composed of connective tissue ixed with some elastic fibers. The fixed cells re thin or flattened. Unstriated muscle fibers ay be found around these cavities and would em to indicate a venous origin of the process. hen a capsule exists, it is formed by connective ssue, but this tissue varies in thickness and ake-up according to the age of the process. In ie younger strata numerous nucleated cells are en, at times small and round, at others fusiform. i the older strata the cells are fewer and the in-rmediary substance is denser with more or less umerous elastic elements. Since the capsule es not exist in the younger angiomata and ap-ears only at a rather advanced stage of the ocess, it is evidently a mere secondary produc-on. But it must not be supposed that it forms i invariable limit, because in those regions here the capsule is young numerous capillary asses are found whose walls are made up of ie stroma of the capsule lined with endothelium, hile some of these vessels are undergoing ectasis.

is probable that these areas are the site of tive vascular neoformation by which the neo-asm continues to grow. The angiomata therefore e never limited in the strict sense of the word r the reason that the capsule, far from arrest-g its extension, on the contrary serves it as a atrix for further development in certain areas. owever, when it exists and its structure is more less embryonal, it always forms a less vascular ne at the periphery of the angioma which, from ie viewpoint of operation, offers the inappre-able advantage of serving as a plane of cleavage, llowing an easy removal of the growth without ing through the vascular sponge forming the mor itself.

The general tendency of all these tumors is to ow indefinitely. The interstitial lesions become centuated, the cavities increase in size by sev-al becoming united into one, while ectasis ex-nds to the adjoining vascular networks. In cer-in spots the vascular neoformation continues its ork, the capillaries dilate and become mingled, id thus new cavities are formed. Occasionally, llowing inflammation or trophic or accidental cerations, the resulting cicatrices bring about lerosis—partial or total—of the tumor. The ssels retract, become occluded in spots, and the gioma atrophies. The same result follows par-al angiectomy.

These angiomata may be the seat of various rms of inflammation or of external or internal morrhage, but of all the complications the most portant are those arising from the vascular stem. In the midst of the neoplasm or in its mediate neighborhood, the small vessels may fer lesions similar to those of the capillaries, id the process may even extend to the large teries and veins. In the case of the arteries a rsoid aneurysm may result which then complete-overshadows the angioma by its importance. In e veins the same phenomena occur, but their ex-nsion and lesser gravity cause them to be lost sight of. These venous varices may exist alone without arterial varices. We know of no case of carcinomatous or sarcomatous transformation of these angiomata.

Recurrence of these neoplasms is infrequent, even after partial excision. The explanation of this fact is not easy. When the rapidly progressive extension of some diffuse angiomata is considered, and on the other hand the pronounced embryonal state of the neocapillaries, their number, and also the structure of the connective tissue invaded by such a prodigious number of young cells, thus simulating a sarcoma, it may very well be asked why these embryonal tissues which have escaped removal do not continue to grow on their own account. The evolution of these growths is a phenomenon of which we have no satisfactory explanation. It would seem that the vascular neoformation requires for its reproduction the continued irritation produced around it by the angioma, and when the central mass of the growth has been removed —the cause of all these disorders—the process itself becomes extinguished.

EPIDEMIC ENCEPHALITIS IN THE BOVIDES.

READERS of the MEDICAL RECORD may recall an editorial on the possibility of the origin of epidemic encephalitis in mankind from an animal source. Numerous data were given to sustain this opinion and it was pointed out that this malady and rabies were members of the same group. In each, for example, the contagious principle could escape through the saliva. At a recent session of the Academy of Medicine, Paris (*Le Bulletin Médical*, February 8-11, 1922, xxxvi, 7), Donatien and Bosselut described a new affection in cattle, first seen in the fall of 1921, in which twenty animals of an Algerian herd were attacked, with nine fatalities. This malady was evidently contagious and the clinical picture at first strongly suggested rabies. The animals were rabid as to demeanor and were salivated and no sensible lesions were in evidence. But rabies was excluded by the absence of certain paralyses and glycosuria, together, of course, with negative history of contagion by biting, etc. However to decide the question finally the bulb and spleen of the victims were triturated and inoculated into various calves, sheep, rabbits, and guinea pigs. The virus was exhibited by subcutaneous, intramuscular, intraperitoneal, and intraocular routes. Of animals tested only the sheep proved immune. In the others the incubation period varied with the route from twelve to twenty days, with a minimum in one case of four days in which the virus was inoculated directly beneath the dura. In this case the virus had also received special treatment with glycerin.

Once initiated, the picture of the malady was evolved in twelve hours or less. The animals became somnolent with spells of excitation and exhibited sialorrhea and pronounced hypothermia, the temperature going to 33° C., and before death even to 30° C. In some cases there were evidences of myelitis. Death evidently occurred in coma. The

autopsy showed marked congestion of the nervous centers. In the corpora quadrigemina, cerebral peduncles, protuberance, bulb, and anterior cornua of the cord there was an accumulation of leucocytes about the blood vessels.

In the rabbit especially the rapid evolution alone excluded rabies, the latter requiring more than twenty-four hours. It is evident that we have here a new neurotropic virus which stands in relationship with epidemic encephalitis in man and also possibly with poliomyelitis. In the earlier opinion quoted previously in the MEDICAL RECORD, the author of the original article went so far as to hazard the opinion that epidemic encephalitis might represent an attenuated or modified form of canine rabies.

ACUTE YELLOW ATROPHY OF THE LIVER.

THE relationship of this peculiar affection to gravidity, syphilis, and other general states on the one hand, and to acute phosphorus poisoning on the other, aids in making its origin problematical. Meier has recently studied the group type to which acute atrophy belongs, although without any reference to the toxemia of pregnancy. He regards it as a matter of atrophies rather than atrophy; that is of different affections having a common termination. Thus ordinary catarrhal jaundice may end in atrophy of the liver and such cases have of late years been so common as to warrant the belief that they furnish the type. Close comparison with phosphorus poisoning shows a common mechanism, despite many superficial differences; phosphorus in other words can cause lesions which end in acute yellow atrophy. The latter affection does not differ save in degree from the central lobular necrosis seen in dogs with Eck's fistula. Despite the length and thoroughness of this study which is published in the *Zeitschrift für klinische Medizin* for December 31, 1921, xcii, 4-6, there is only the slightest allusion to the pathology of the liver of pregnancy. We find no more than the statement of the frequency of acute yellow atrophy in the gravid—from one-third to one-half the cases occurring in women are of that association. It is commonly taught that in puerperal and gestational eclampsia there is always central lobular necrosis of the liver, although the lesions may at time escape observation. It thus becomes possible to connect eclampsia with acute yellow atrophy and incidentally to recognize the common nature of all hepatic necroses, which may be present in many different degrees which give rise to very different clinical pictures. In addition to phosphorus, chloroform, alcohol, poisonous mushrooms, ptomaines so-called, and an entire series of bacterial toxins are able to attack the parenchyma of the liver, one office of which is said to be the protection of the individual against the entrance of toxic matter into the systemic circulation.

BISMUTH STOMATITIS.

CERTAIN resemblances between the heavy metals lead us to expect similarities of pathological activity, which could originate through the elimination of the soluble salts by the saliva, urine, etc. The action of mercury in this respect is well known, while lead also manifests itself by alterations i the mouth and kidneys. Bismuth has been know to us in the past almost solely through the topic action of insoluble salts and only recently have i compounds been given by injection in syphilis. is true that in animal experiment as far back 1889 stomatitis was induced in the dog by exhibi ing soluble salts of bismuth. In speaking of solub salts it must be remembered that the substanc actually injected for syphilis have been regarded technically insoluble—chiefly the tartrobismuthat of sodium and potassium, but the sudden super vention of stomatitis which has often been en countered, as well as the therapeutic efficacy, pre supposes the formation of a soluble fraction. Milia and Perin have recently called attention to the ap pearance of a characteristic metallic line at th gingival border as the first buccal symptom o bismuthism; in a higher degree one sees gingiviti and ulceration of different degrees in differe areas of the buccal mucosa. A third manifestatio is the appearance of areas of slaty pigmentatio on the internal aspects of the cheeks. The author brought the subject up at a recent meeting of th French Dermatological Society (*Le Bulletin Médical*, January 25-28, 1922, xxxvi, 5) and the discussion which followed showed that in 30 per cent. or more of cases thus far treated wit bismuth injections stomatitis had developed, eve in subjects with mouths in perfect condition. By spacing the injections the incidence is reduced. Salivation is apparently present, but is much less marked than in hydrargyrism. Th ulcers may appear very suddenly immediately after the second injection. Two of the members had also noted albuminuria following bismuth injections. The actually soluble bismuth salts have been found much too toxic for use in therapeutics.

News of the Week.

Deaths From Lethargic Encephalitis.—The Department of Commerce, through the Bureau of the Census, has recently issued a statement showing the number of deaths in 1920 from lethargic encephalitis. In 1920 in the death registration area of the United States lethargic encephalitis was given as a cause of death on 1,505 death certificates, as against 589 in 1919, giving mortality rates, respectively, of 1.7 and 0.7 per 100,000 population. Deaths from this cause were reported for every State in the registration area except Delaware; the largest number in any one State was 364 reported for New York State and giving a rate of 3.5 per 100,000 population. Cities are credited with 1,129 of the 1,505 deaths and rural sections with 376, with rates, respectively, of 2.6 and 0.8 per 100,000. The white population with 1,453 deaths from lethargic encephalitis has a rate of 1.8 per 100,000 population, while the colored population with only 52 deaths has a rate of 0.7. Males and females contribute about equally to the total deaths from this cause, with 781 males and 724 females. More of these deaths appear for persons aged 20 to 29 than for any other age group, though nearly as many are found for the age groups 30 to 39 and 40 to 49, and no age group escapes entirely.

Leprosy in New York.—On the first of January, 22, there were 35 reported cases of leprosy in the eater City—an increase of 7 during 1921. Of ese cases, 12 were in municipal hospitals, the hers being at home pursuing their regular voca-ons, as the policy of the Department of Health is regard as non-contagious all cases presenting open sores or mucous discharges. All cases e under the periodic examination of a special edical inspector of the Department and are be-g treated with chaulmoogra oil.

Prophylactic Value of Pneumonia Vaccines.—n the basis of the data submitted by a number experts at a special conference, the Public ealth Committee of the New York Academy of edicine has formulated the following statement: The experiments of prophylactic inoculation ainst pneumonia carried out during the period the war and subsequently have thus far not elded sufficiently convincing proof of its effi-cy to warrant universal application. The ex-eriments have, however, established that: (1) ne vaccines have some value against three of the ted bacteriological types of lobar pneumonia; 2) the duration of immunity secured is not very ng—probably not over 5 to 6 months; (3) the accinations do no harm and there have been no tal or serious results from them; (4) the in-culation, in order to be complete, has to be given three doses. In some cases a rather unpleasant action develops and about 5 per cent. of the ses feel ill for a day or two. Experiments are ing made with some success, with indications still greater success in the future, rendering e vaccines less constitutionally disturbing with-t being less efficacious; (5) there is a definite dication for the use of vaccines against pneu-onia in persons particularly exposed or coming n continuous contact with pneumonia; (6) every fort should be continued to prevent the spread respiratory diseases through expectoration, oughing, and sneezing. Unfortunately at the resent time the regulations are difficult to en-orce and are not generally observed. Under the rcumstances and until such time as the rules ainst spitting and unprotected coughing and eezing are universally followed, the most prom-ing means of preventing acute respiratory dis-ses lies in the prophylactic vaccine inocula-ons; (7) inasmuch as the prevention of pneu-onia by inoculation is still in an experimental age and inasmuch as there are many prepara-ons put on the market which are of doubtful lue, the promiscuous use of vaccines should not encouraged.

Conference on Public Health.—Under the spices of the United States Public Health Serv-e a conference was held in Washington on arch 14 and 15, which was attended by deans schools of public health and medical schools, residents of universities with which these schools e connected, a selected number of professors of blic health subjects and men actively engaged public health work, on "The Future of Public ealth in the United States and the Education of nitarians." After considering the present status the public health movement and present facili-es for the education of health officers and other sanitarians, the conference considered various newer aspects of public health and their importance in the training of sanitarians; the various kinds of sanitarians which will be needed for the future; the recruiting and training of more and better sanitarians; and the various problems connected with the training of sanitarians for the future, and the further education of those who are now employed in public health work.

The Toll of Famine and Pestilence in Russia.—Dr. Semashko, the Soviet Health Commissioner, has issued a statement placing the number of deaths in the famine districts of Russia at 200,000. Dr. Semashko estimates that some 25,000,000 people are affected by the famine, and expresses great fear that cholera and other diseases will appear with the spring. He emphasizes the lack of personnel in the medical corps because of the mortality from typhus, and also the need of serums and quinines. Russia is able to supply only about 25 per cent. of her needs in this direction. It is estimated that $5,000,000 worth of medicine would save the situation.

Would Have Doctors Pay More Attention to Infectious Jaundice.—The New York State Health Department calls attention to the fact that notwithstanding the fact that reports of epidemic jaundice have been received from almost every part of the State, that the disease is epidemic in adjoining states, and that Health Commissioner Copeland has issued a statement asking the physicians of New York City to cooperate with his department in ascertaining more fully the facts with reference to this disease, the disease has attracted little attention. The reason for this is because, so far as the State Health Department has been able to find out, there have been no deaths from the disease. Dr. Hermann M. Biggs, State Health Commissioner, points out, however, that we never know when and where these maladies may suddenly revert to original and severe types. Health authorities do know that infectious jaundice in Japan is a serious matter, from 30 to 50 per cent. of the cases terminating fatally. Recently cabled reports from Warsaw told of an epidemic, fatal and widespread, that was ravaging the Russian border of Poland, where large numbers of Russian refugees were pouring into the country. This disease was called a sort of combination of influenza and jaundice, but from the description of the ailment it would seem to be the same epidemic jaundice that manifests itself so severely in Japan.

Suicide in the United States.—According to the annual report of the Save-a-Life League recently issued, more than 20,000 persons in this country committed suicide during 1921. Suicides were 23 per cent. more numerous last year than in 1920. There were 840 suicides in New York City during 1921, an increase of 103 over 1920. According to the report, 1,200 men and women, before killing themselves, murdered more than 2,000 others. Loss of employment, commercial failure, and reactions from the war are given as causes, but many were due to amazingly trivial causes. Among the 1921 suicides were 10 editors, 10 well-known writers, 40 college students, 51 school teachers, 21 clergymen, 57 judges and lawyers, 7

mayors, 93 bankers, and 88 presidents of large business concerns.

In Jail for Barring Children's Vaccination.—Three residents of Camden, N. J., have been committed to the county jail charged with having refused to have their children vaccinated on order of the Berlin, N. J., Board of Education. They also refused to pay the fines of $100 and costs.

Increased Requirements for Medical School.—The Board of Trustees of the University of Pennsylvania have adopted a resolution that, beginning with the scholastic year of 1923, all applicants for admission to the medical school will be required to have a collegiate degree or to have completed three years of collegiate training, with the provision that the bachelor's degree will be given in the first year of the medical course.

Medical College Must Close if State Refuses Funds.—E. L. Bemis, representing the Medical College of Virginia, appeared before the Senate Finance Committee of that State and showed that unless the committee could see their way clear to add $30,000 a year to the support of the Medical College of Virginia and to the three hospitals with which it is affiliated, the doors of the college would not be opened next fall. There has been an annual deficit of $35,000 to $45,000 in the teaching department and of $36,000 in the conduct of the three hospitals.

Clinic Week at University of Alabama.—The post-graduate school of the medical department of Alabama University, Birmingham, gave a clinical week beginning on February 22. All the hospitals in the city contributed to making the course interesting and instructive.

German Students Undernourished.—The German Physicians' Association, comprising 40,000 members, has issued a resolution of thanks to the Quakers of the United States for feeding German children. The resolution urges "our American friends not to grow weary," and states that many children and students still receive insufficient nourishment. According to these resolutions, German societies are now making efforts to relieve the condition of university students, many of whom, it is asserted, have not tasted meat for weeks. They go without breakfast and eat thin soups for lunch and dinner. These university students present a pitiable appearance. Their clothes are patched and they have holes in their shoes. They are pale and look undernourished.

Oppose Chiropractor Bill.—A hearing on the chiropractor bill, now before the New York State Legislature, was held on March 7, at which the bill was opposed by Dr. Augustus S. Downing of the State Education Department, Dr. S. Dana Hubbard of the New York City Department of Health, Dr. C. E. Lateman, representing Dr. Hermann N. Biggs, State Health Commissioner; Dr. James F. Rooney of Albany, Dr. James N. Vander Veer, representing the State Medical Society. Representatives of the State Osteopathic Society also opposed the bill.

More Rigorous Legislation Asked to Regulate Pharmacists and Druggists.—Legislation to end the activities of unprincipled pharmacists and druggists, operating without licenses, was urged by more than a score of members of the pharmaceutical profession at a hearing before the Senate Public Health Committee on a measure which would prevent the owning and operating of drug stores except by licensed druggists. It was brought out that nearly 500 drug stores in the State were opened last year by unlicensed proprietors.

X-Ray Laboratories Regulated.—At a meeting of the Board of Health of the New York Department of Health, held Jan. 26, 1922, resolutions were adopted providing that no person shall maintain, operate or conduct an *x*-ray laboratory or advertise or hold out to the public that an *x*-ray laboratory is maintained, operated, or conducted wherein radiographs are taken, diagnoses made or human beings examined or treated by *x*-rays, without a permit therefor issued by the Board of Health, or otherwise than in accordance with the terms of said permit and with the regulations of the said board; that every *x*-ray laboratory shall at all times be in charge and under the direction of a duly licensed physician or other person whose knowledge, experience and qualifications to operate and use an *x*-ray machine are satisfactory to the Health Department; that every *x*-ray laboratory shall be so constructed as to confine within the operating room the rays emanating from the machine and it shall be equipped with suitable and necessary appliances and devices at all times when the *x*-ray machine is in operation for the proper protection of patients, operators, and all other persons or property adjacent, contiguous to, or coming in contact with the electrical or other current or force or spark generated or incident to the operation and use of the *x*-ray machine. Permits may be revoked in the discretion of the Board of Health, and no permit shall be transferable as to the person or place.

Uniform Birth Registration Laws Advocated for City and State.—The Section on Pediatrics of the New York Academy of Medicine, at its stated meeting, held March 9, put itself on record as favoring the present 10-day period allowed for the reporting of births and recommended that the State law be made to correspond to the city law in this respect.

Clinic Visits Sick in Rural Districts.—As the farmers as a rule cannot come to the city to the clinic, the North Dakota Tuberculosis Association now brings the clinic to the districts far removed from the cities. Traveling in a business car, the clinic can now reach every district, no matter how far distant. In addition to diagnosing tuberculosis and relieving the sick, the traveling clinic does a great deal in teaching families how to live under difficult sanitary conditions.

National Board of Medical Examiners Meets.—Members of the National Board of Medical Examiners met in the Congress Hotel in Chicago on March 6 to discuss plans for medical examinations to be held in June. According to Managing Director Everett S. Elwood, twenty-one States have accepted the certificate of the National Board, while ten others have signified their willingness to accept it when the various state laws can be amended.

United Hospital Fund of New York Opens Hos-

pital Information Bureau.—Following the survey of hospital work in New York City made by the Public Health Committee of the New York Academy of Medicine and the disclosed need of a central agency of information about hospitals, the United Hospital Fund organized such a bureau with offices at the New York Academy of Medicine, 15 West Forty-third Street. The aims of this bureau are to keep in touch with hospital work and progress in New York City; to furnish information to all interested with regard to administration, record-keeping and other facts concerning hospital work, organization and facilities; to study and make known the hospital needs of the city; to prepare exhibits; to maintain a library of hospital reports and statistics, also of record forms and blanks used in the several departments of the hospitals; to publish annually, or more often, information concerning hospitals; to promote uniformity in hospital reporting; and, whenever called upon by the hospitals, to assist in such administrative and efficiency studies as would be of value to the hospitals, municipal and private. The committee in charge of the bureau are as follows: Mr. Francis Smyth, Chairman, Trustee of the United Hospital Fund; Dr. W. Gilman Thompson, Dr. S. S. Goldwater, Mr. Julius A. Stursberg, and Mr. Henry C. Wright. Dr. E. H. Lewinski-Corwin, Executive Secretary of the Public Health Committee of the New York Academy of Medicine, has been aappointed Director of the Bureau.

Hospital Notes.—The Harlem Eye and Ear Hospital, New York, was formally opened by appropriate ceremonies on the evening of March 14.

Plans have been filed for an eight and nine-story hospital building to be erected on the premises of Roosevelt Hospital, New York. The estimated cost of the new structure is about $500,000.

The Hospital for Deformities and Joint Diseases has purchased another parcel of property adjoining its present hospital building. This acquisition will also form a part of the site of the new hospital building to be started in the near future.

Colonel Charles E. Forbes, Director of the United States Veterans' Bureau, has ordered the immediate abandonment of the Fox Hills Hospital, Staten Island, N. Y., owing to the fact that the building is a firetrap and conditions "deplorable." The 850 patients will be distributed to other institutions in and about New York.

With informal exercises ground was recently broken for an eight-story addition to the Church Home and Infirmary, Baltimore, Md.

The new McClellan Hospital, at Xenia, Ohio, was recently opened for the reception of patients.

The Negroes of St. Louis, Kansas City, and Chicago are making arrangements for the erection of a sanitarium and hospital at Carrollton, Mo.

The Baer Memorial Hospital at Fort Smith, Ark., county tuberculosis hospital, will be ready for occupancy on May 1.

The West Mountain Sanitarium, Scranton, Pa., has been taken over by the county commissioners and henceforth will be operated as a county tuberculosis hospital.

The Lying-In Hospital, New York City, celebrated the 123rd anniversary of its incorporation on March 1. It is the oldest maternity hospital in New York City and has a record of having brought 130,000 babies into the world, 79,696 in the out-patient department and 50,957 in the hospital itself.

Contracts have been let for the erection of a new hospital at Cuching, Ariz., at an estimated cost of $50,000.

A new dispensary was opened on March 1 in connection with the Fairview Park Hospital, Cleveland, Ohio.

The new private pavilion, children's building and auditorium of Mount Sinai Hospital, New York, will be opened for the public at dedication ceremonies on April 9.

The Good Samaritan Hospital, Los Angeles, Cal., has purchased several residences on Orange Street, thus increasing the property so as to include the entire block bounded by Orange, Witmer, Lucas, and Shatto streets.

Dr. A. G. Fowler has been appointed physician and surgeon to the Atlanta Federal Penitentiary by the Department of Justice in Washington.

Dr. Roy A. Morter of Kalamazoo, Mich., has been elected president of the Exchange Club of that city.

Dr. Carl Schleich, originator of the Schleich method of local anesthesia, died recently in Berlin.

Harvey Society Lecture.—Dr. W. J. V. Osterhout, Professor of Botany, Harvard University, will deliver the eighth Harvey Society Lecture at the New York Academy of Medicine, Saturday evening, March 25, 1922. His subject will be "The Mechanism of Injury, Recovery, and Death."

The Western Electro-Therapeutic Association will hold its fourth annual meeting in Kansas City April 21-22, 1922, under the presidency of Dr. Curran Pope of Louisville, Ky. Dr. Grover's School of Electro-Therapy will hold its sessions on April 17-19, preceding this meeting. Dr. Charles Wood Fassett of Kansas City is secretary of the association.

The Medical Society of the Missouri Valley will hold its annual meeting in St. Joseph, under the presidency of Dr. Paul E. Gardner, on September 21 and 22, 1922. Further information with reference to this meeting may be obtained by addressing the secretary, Dr. Charles Wood Fassett, 115 East Thirty-first Street, Kansas City, Mo.

Surgeons of Five States Meet in Birmingham.—The first group meeting of the Alabama, Georgia, Louisiana, Florida, and Mississippi sections of the American College of Surgeons met in Birmingham, Ala., February 24 and 25, 1922. This is the second meeting of this branch of the American College of Surgeons in the South. The first meeting was held last year in Atlanta.

Obituary Notes.—Dr. JOSEPH WATSON MARTINDALE died of pneumonia at Camden, N. J., on Feb. 22, at the age of fifty-seven years. He was graduated from Jefferson Medical College in 1894. He was a member of the Camden County Medical Society, the New Jersey State Medical Society, the Philadelphia Medical Club and a Fellow of the American Medical Association. He was at one time secretary and historian of the Camden County Medical Society.

Dr. JAMES A. OWEN of Newcomb, N. Y., former coroner of Essex County, died of pneumonia in the Ticonderoga Hospital on February 17, at the age of fifty-six years.

Dr. JAMES EDWARD BURT of New York, a graduate of the New York Homeopathic Medical College and Flower Hospital in 1899, died at his home on March 4.

Dr. WILLIAM LAWRENCE MAULDIN of Greenville, S. C., a graduate of the University of Maryland School of Medicine, died on March 3, at the age of forty-four years.

Dr. M. FORD MORRIS of Atlanta, Ga., died of heart trouble on February 18, at the age of twenty-seven years. He was graduated from the Atlanta Medical College in 1916.

Dr. THOMAS CANNING CHURCH of Valley Falls, N. Y., a graduate of the University of Michigan Medical School in 1878, died on February 16, at the age of fifty-six years.

Dr. ALEXANDER W. FAIRBANKS of Chazy, N. Y., a graduate of Albany Medical College in 1874, died on February 19, at the age of seventy years. He was a Fellow of the American Medical Association and at one time a member of the State Legislature.

Dr. MARIT F. NELMS, a graduate of the Atlanta College of Physicians and Surgeons in 1900, died at his home in Commerce, Ga., on February 16, at the age of fifty-one years.

Dr. WILLIAM N. WILLIAMSON of Indianapolis, Ind., a graduate of the Indiana Medical College in 1880, died on February 21 at the age of sixty-seven years.

Dr. CHARLES W. KARSNER died at Philadelphia on March 1, at the age of eighty-two years. He was graduated from Hahnemann Hospital and Medical College, Philadelphia, in 1875 and from Jefferson Medical College in 1878. He was from 1884 to 1892 a member of the City Council and for a time a member of the Philadelphia Board of Health. He served in the United States Army during the Civil War.

Dr. F. M. AGNEW, a practitioner of medicine for sixty-two years, died at his home in Carbondale, Ill., on March 15, at the age of eighty-one years.

Dr. THOMAS R. THORNTON, formerly of Lees Summit, Mo., died in Kansas City on Feb. 26, aged seventy-eight years. He was graduated from Washington University Medical School, St. Louis, in 1878.

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Correspondence.

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, Feb. 22, 1922.

A Form of Influenza Resembling Scarlet Fever.—The question of the similarity in certain characteristics of influenza to scarlet fever was discussed at a recent meeting of the Manchester Medical Society when Dr. St. Clair McClure, assistant to the Manchester Medical Officer of Health, said that the diagnosis of scarlet fever was becoming increasingly difficult. He pointed out that there were many cases in which the difference between mild scarlet fever and mild influenza was not clear. At the same meeting the wisdom of sending these mild cases to the fever hospital was questioned. Dr. R. W. Marsden spoke of the necessity of good evidence that the patient was suffering from scarlet fever before ordering to hospital, and he emphasized the necessity of nursing and isolating at home all cases which could be so dealt with. Dr. McClure agreed that if isolation accommodation was practicable in the home and the parents could be depended upon, it was preferable to keep the patients at home. But the figures of Manchester showed that there was a definite advantage to individual households in the removal of cases to hospital. The greater the promptitude in removing the patient the less would infection spread among family contacts. This was shown by an investigation carried out over a series of years.

The Attempt to Scale Mount Everest.—Mr. A. F. R. Wollaston, surgeon to the Mount Everest Expedition of 1921, lectured the other day in London to the Royal Geographical Society. In giving a description of the general health of the party the lecturer said that before they left England they were warned that after a few weeks in these high latitudes they would find themselves growing irritable. On the contrary, however, the temper of the party, even during a fortnight's delay, from September 6 to 19 at the height of 17,000 feet, had been excellent. Mr. Wollaston denied the stories of the "wild snow men" which had recently been revived by the discovery on the part of the expedition of strange footprints on the mountain slope at the height of 21,000 feet. It was not necessary to inform a scientific society, that Himalayan bears did not make excursions to 10,000 feet above the last fruit-bearing tree, and there were no such creatures as wild snow men. There could be no doubt that what they saw were the tracks of a wolf, loping along at a very good pace. He had met the story of "snow men" at two places as far apart as Dutch New Guinea and the middle of Africa and did not believe it.

Crime a Pathological Condition.—At a meeting of the Royal Society for the Assistance of Discharged Prisoners on February 20, Major-General Sir F. H. Sykes said that the question was often heard, Is crime a disease? At last they knew that in many cases it was due to disease. The burly ruffian was no longer, if ever he was, typical of the criminal. It was not brute strength, but disease, drunkenness, starvation, heredity, in fact all these things leading to spiritual weak-

ness, which bred the criminal of to-day. Nor should prevention be the final aim of punishment. It was not through fear of punishment that a man should desist from crime, but through the strengthening and evolution of character which made wrongdoing revolting to him. The real solution, therefore, lay in cure, and it was to this end that men were beginning to work. Sir Frederick said that he was speaking more especially on behalf of those soldiers, sailors, and airmen who in many cases had served their country with honor, but had subsequently suffered from moral relapse and had been committed to prison. These men offered only fresh proof that crime was in no small part a mental disease. They had suffered much, they had passed through mental strain, they were physically weakened and no longer possessed the strength of will to fight against the terrible conditions which the aftermath of war had imposed upon the poorer classes. The majority were young men convicted of first offenses. Was it to be believed that these men, many of whom had fought with distinction for their country, were irredeemably lost? The answer must be in the negative. The best cure for crime, in both its mental and economic aspects, was hard work, and the first object of this society was to obtain for these men suitable employment and to remove them as far as possible from contaminating surrounds. To effect this one of the methods which most appealed to him was sending youths and young men to sea, where they had hard work to do in a healthy atmosphere. There is no doubt that a criminal is not normal and when his propensities render him a menace to society, for the protection of the community at large he must be isolated. Many criminals may be treated successfully so as to become useful citizens, and it has long been a question in this country whether harsh punishment, such as imprisonment for protracted periods, does not do more harm than good. It is argued, and with a good deal of reason, that such punishment does not act as a deterrent but rather the reverse. It tends more to aggravate the criminal instincts than to prevent them. The stigma of imprisonment never leaves a person. As said before many criminals can be successfully treated, and the methods in vogue in America generally, that is, wherever possible of not attaching the brand of crime to offenders against the law, but of attempting to cure them of their mental disease, is beginning to find favor in this country. The horrors of the war by acting on the nervous system of those unstable from heredity or other causes and the difficulty found by many of the poor of gaining an honest livelihood have greatly augmented the number of criminals in Great Britain and it seems as far as may be, that the majority of these should be regarded as sufferers from mental disease and given every chance to recover their social status. Undoubtedly hard work and change of scene are excellent remedies, as it is futile and dangerous to coddle individuals thus afflicted. Although improvements have been introduced already into the British system of punishing the breaker of the law, it still errs on the side of harshness, and the whole penal system requires investigation and revision where necessary. Perhaps some useful hints in this direction might be gathered in America despite the fact that it is generally believed here that the other extreme is sometimes reached in your country. That is to say, that sometimes the tendency is to treat criminals with undue leniency. The freedom of criminals of a certain type must be rigidly restricted for the sake of the public, even though they may be suffering from mental disease. It must be borne in mind that there are many physical diseases which are not amenable, or only slightly so, to treatment and, of course, the same is true of mental diseases. As in the case of physical disease, so it is in mental disease, they must be accurately diagnosed ere any treatment is possible. The incurable ones, so far as criminal mental disease is concerned, should be treated kindly, but at the same time must not be allowed to be a danger to society.

Preliminary Report of the British X-ray and Radium Protection Committee.—This report is the first of its kind issued from the above committee. The standpoint taken is that the dangers at the present time of work with *x*-rays and radium are known and can be adequately guarded against by thorough and systematic precautions. The following recommendations are made: (1) To provide adequate space and ventilation in radiological departments; (2) To give appreciable off-duty and holiday periods to compensate for the hours necessarily spent in dark rooms; (3) To insist on a strict adherence on the part of the personnel to the precautions recommended for their safety. In working with radium the dangers of manipulating large quantities of the emanation are considered as well as those due to the penetrating gamma-rays. The blood changes which have been observed in people who have suffered from overexposure to radiation induce the committee to recommend that systematic blood counts of the personnel be made with a view to recognizing any such changes as soon as possible.

Tuberculous Milk for London.—During the three months ended September 30, 1921, under the London County Council Act, 1907, 624 samples of milk from 23 English counties were taken at London railway stations, with the result that 19, or 3.04 per cent., proved tuberculous; 456 cows at 18 farms situated outside the county of London were examined by the L. C. C. veterinary inspector. As the result 11 cows were found on inspection to be affected with generalized tuberculosis. In addition, the inspector revisited 61 farms and inspected 2,152 cows. The animals except 18 of them, were found to be in a satisfactory condition.

Prostatitis in Cystostomized Prostatics.—Alapy has noted that in the inoperable prostatic patient who is subjected to cystostomy the enlarged prostate is very apt to inflame with resulting adhesion of the gland to its capsule. This accident forms at times an indication for prostatectomy and the author has performed the latter in fourteen out of seventeen cystostomized subjects who developed prostatitis.—*Wiener klinische Wochenschrift.*

Progress of Medical Science.

Boston Medical and Surgical Journal.

March 2, 1922, clxxxvi, 9.

1. Address before the Worcester Surgical Society. E. H. Trowbridge.
2. Experiences with Tumors of the Spinal Cord. W. J. Mixter.
3. End Results of the Surgical Treatment of 48 Cases of Tuberculous Cervical Adenitis. Frank H. Lahey and Howard M. Clute.

2. Experiences with Tumors of the Spinal Cord.—W. J. Mixter analyzes a group of 54 cases giving the symptom complex of spinal cord tumor, in which some 21 different pathological processes were encountered. In this group of 54 cases laminectomy was performed on 45 patients, with 9 being deemed inoperable. The mortality was 4.1 per cent. Mixter's rule at present is to operate on any case presenting signs of a definite cord lesion, even if degenerative processes are strongly suspected. He finds Dr. J. B. Ayres' method of combined puncture of the cisterna magna and lumbar space a very valuable means of differentiating between the degenerative lesions and those in which surgery may be successful. Its use should be restricted to those very thoroughly versed in the procedure. The writer has operated on some 18 cases following double puncture and has always found tumor, if indicated by puncture. There is little new to offer as regards the technique of laminectomy. Wide exposure is essential; short incision and unilateral laminectomy are both to be condemned. A point upon which emphasis is laid is that after dissection has been completed on one side the spinous processes can be undercut close to the laminæ, with heavy forceps, and turned aside with the muscles of the other side. It is necessary to undercut one spinous process above and one below the laminæ whose removal is contemplated. This is done, however, without additional dissection. The interspinous ligament is preserved with the spinous processes, thus considerable dissection is avoided and a structure of great strength is retained, while the exposure obtained is just as satisfactory as if the spinous processes are completely removed. The differential diagnosis of cord lesions depends on careful, painstaking neurological examination, good *x*-rays and the examination of the spinal fluid. Cord tumors have been treated for chronic appendicitis, gall-bladder disease, and various orthopedic and genitourinary troubles, as well as diagnoses of degenerative troubles before coming to operation. Chronic cord compression is more common and more amenable to treatment than some of us have believed. A number of supposedly incurable paralytics will be found to reveal the opportunity for well-nigh marvelous surgical results, and the risk of operation is hardly greater than in many of the more serious abdominal lesions.

3. End Results of the Surgical Treatment of 48 Cases of Tuberculous Cervical Adenitis.—Frank H. Lehey and Howard M. Clute state that in 46 of these 48 cases the results were classed as excellent; yet in 26.08 per cent. of the series, they found evidence of paralysis of the trapezius muscle from interruption of the conductivity of the spinal accessory nerve or the third and fourth cervical nerves. Surgeons must admit that "bloc dissections" result in spinal accessory or third and fourth cervical nerve paralysis, with consequent functional disability, too often to permit its being resurrected from the oblivion into which it has, for the most part, sunk in the treatment of tuberculous cervical adenitis. Surgery, in the writers' opinion, should not be resorted to in tuberculous adenitis until *x*-ray therapy has been tried for a considerable length of time—from six months to a year—providing the disease is not spreading and involving the adjacent glands. Surgical removal of the glands should be undertaken when in spite of *x*-ray and hygiene, either the neighboring glands are becoming involved, or, after a fair trial of radiation, shrinkage is not apparent. Where one or two large glands must be removed, *x*-ray failing, it is unnecessary to remove the small, soft, non-caseous glands which surround them; these may be treated by radiation. Whenever an extensive neck dissection for a not necessarily fatal condition is undertaken, one should have definitely in mind the possibility of spinal accessory paralysis, and that that paralysis is a serious one, limiting arm abduction to less than a right angle with the body.

New York Medical Journal.

March 1, 1922, cxv, 5.

1. Modern Commentaries on Galen. Jonathan Wright.
2. Metabolism During Starvation and Undernutrition. Francis G. Benedict.
3. Early Hip Joint Disease in Childhood. J. Torrance Rugh.
4. Recurrent Lobar Pneumonia. W. Gilman Thompson.
5. Pneumonia. A. C. Morgan.
6. Treatment of Focal Infections of the Throat by *X*-Ray Compared with Surgical Removal of Tonsils and Adenoids. W. D. Witherbee.
7. Group Diagnosis. Homer E. Smith.
8. A Reply to Certain Anatagonistic Criticism of Non-Surgical Biliary Tract Drainage. B. B. Vincent Lyon.
9. Blood in the Digestive Tract. L. Winfield Kohn.
10. Local Anesthesia in Dental, Oral, Nose and Throat Surgery. H. E. Tompkins.
11. Race Immunization. Caspar L. Redfield.
12. Twins and the Problem of Heredity. Maximilian B. E. Groszmann.
13. The Relationship of Precordial Distress to Extracardiac Conditions. Edward C. Reifenstein.

2. Metabolism During Starvation and Undernutrition.—Francis G. Benedict, as the result of observations on men during short and long periods of starvation, concludes that the withdrawal of food for periods of four to seven days with a large number of individuals and for a period of at least thirty-one days with one individual was brought about without distress, notwithstanding that the human being is most sensitive to his food supply and personal comfort. There was complete absence of so-called hunger pain. The withdrawal of food for periods of seven to thirty-one days did not result in any sense in permanent injury. This Benedict points out is a most fundamental and revolutionary conception. An experiment was carried out on twelve students of the International Y. M. C. A. College in Springfield, during which these men were kept for four months on an energy content a little more than one-half their caloric requirements prior to the test. Practically every morning the members of this squad had their basal metabolism taken. The outstanding effects dealing with the basal metabolism was a gradual reduction in weight to a point 12 per cent. below the initial weight during a period from three to ten weeks with low calories and a moderate amount of protein in the food intake. One squad of twelve men subsisted for three weeks on 1400 net calories without special disturbance. After the loss in weight of 12 per cent. had been reached, the net calories required to maintain this weight averaged about 1950, or but a little more than half the original amount required. At the end of the reduction in weight, the actual heat output during the hours of sleep, as computed by indirect calorimetry, was approximately one-fourth less than normal. There was no seasonal variation in the metabolism. The analyses of food, feces and urine were sufficiently complete to permit a nitrogen balance to be made, and it was found that throughout the period of loss in weight and for some time subsequent thereto, there was a marked loss of nitrogen to the body. There was an intimate relationship between the surplus nitrogen and the metabolic level. Removing what may be designated surplus nitrogen, distinctly lowers the stimulus to cellular activity. The pulse rate and blood pressure, both systolic and diastolic, was distinctly lowered. The skin temperature in some subjects was lower than normal. The rectal temperature was practically normal. The psychological changes in these men were not such as to interfere materially with the discharge of duties common to student life. Endurance tests showed that these men in the diet squad were not appreciably inferior to that of the average men of the student body. With the resumption of normal diet the body weight recoveries were perfectly marvelous and the tendency was to take on much more than the amount lost during the fast. The conclusions seem warranted that prolonged curtailment of diet is not necessarily disastrous to adults. No argument, however, is needed to point out that marked undernutrition is distinctly disadvantageous to children and youths.

9. Blood in the Digestive Tract.—L. Winfield Kohn calls attention to the definite significance of blood anywhere in the intestinal tract. It is his opinion that no one single test has greater importance in the study

f diseases of the alimentary tract than that of the lood test, visible or occult, but many important factors ıust be borne in mind lest the importance of the test windles into obscurity. Practice with the smaller ıbes will reduce the probability of trauma to a mini-ıum. Bleeding from the respiratory tract, teeth, gums, tc., or from hemorrhoids, rectal growths, or anal fis-ıres, may as a rule be accounted for, and such bleeding ıould be ruled out. Those conditions which do not ive evidence of blood in either gastric contents, duode-al contents, or stool, are generally functional in origin r nature, though the absence of blood in the stool alone oes not exclude the possibility of small hemorrhage bove as in the stomach and duodenum. Very small mounts of blood may accumulate in the fasting stom-ch as a result of a breech in the gastric lining, yet will ot accumulate in the short hour following the admin-ıtration of a test breakfast, hence no positive blood eaction will be obtained in the test breakfast contents. Vhen bleeding can be assigned to certain portions of he tract, the fact of the existence of organic disease ; established, and such a breech in continuity may indi-ate ulcer, erosions, papillomatous growths, chronic in-ammation, passive congestion, or malignancy in the ıucosa, corresponding either to the area of the stomach r bowel from which it has been obtained, or to a oint in adjacent organs connected with the bowel tract, uch as the liver, pancreas, gall ducts, or gallbladder. 'o learn that bleeding exists is a most worthy accom-lishment; to ascertain the direct cause requires study rom every angle and through every possible means t our command.

11. Race Immunization.—Casper L. Redfield points ut the impossibility of vaccinating each person against ll different germs of a pathological character, and that ve must therefore look for some means of building up esistance to disease in general. The power which ights disease of any kind is common mechanical energy. 'he quantity of energy in any organs may be increased y properly exercising them. The supply of one organ nay be drawn upon to help out another organ which s subject to an unusual load. Such transference of nergy from one organ to another may also involve . transformation as when mental energy is drawn upon o help out a tired arm muscle. As bacterial attacks re local, this power of transforming energy and trans-erring it from unaffected places to points of attack s important in both prophylaxis and therapeutics. Red-ield pictures an individual immunized to a number of athological organisms and taking a mild course of hysical training to keep up his general physical owers, also occasionally inoculated with mixed vac-ines, and propounds the question as to whether it vould be necessary to repeat this operation generation fter generation. He thinks not, inasmuch as it has een demonstrated that powers developed by exercising hem are inherited. Consequently, if parents are made mmune before their children are conceived they will nherit a high degree of resistance to the diseases in-'olved. He points out that we have a direct case of he inheritance of resistance developed by vaccination gainst smallpox in the decreased incidence and les-ened virulence of this disease even among the unvac-inated descendants of vaccinated progenitors. Data re presented showing that earlier children suffer much nore from tuberculosis than do later children. This neans that the greater the extent to which the arents have exercised their powers of fighting tuber-ulosis before their children are conceived, the greater s the resistance of the children to that disease. Syphilis s another lingering disease against which a person levelops resistance by fighting it. It is well known hat the earlier children of syphilitic parents suffer nore from this disease than do later ones. Clearly hildren inherit the resistance which parents develop y fighting disease.

Journal of the American Medical Association.

March 4, 1922, lxxviii, 9.

1. The Growing Menace of Benzene (Benzol) Poisoning in American Industry. Alice Hamilton.
2. Is the Control of Diphtheria Leading to Eradication? James Gordon Cumming.
3. The Therapeutic Index of Silver Arsphenamine: Comparison with That of Arsphenamine and Neoarsphenamine. Abraham Strauss, D. M. Sidlick, M. L. Mallas, and B. L. Crawford.
4. The Antiscorbutic Value of Dehydrated Fruits. Philip F. Eckman.
5. Species of Hymenolepis as Human Parasites. Asa C. Chandler.
6. What Ought the United States Pharmacopeia to Contain? Oliver T. Osborne.
7. The Collection and Preservation of Human Milk: Preliminary Report. Paul W. Emerson.
8. Bluish Discoloration of the Umbilicus in the Diagnosis of Ruptured Extrauterine Pregnancy. Emil Novak.
9. The Etiology of Orthostatic Albuminuria. Willy Rieser and Sidney L. Rieser.
10. Isolated Disease of Scaphoid Bone of Foot. Arthur S. Risser.

1. The Growing Menace of Benzene (Benzol) Poisoning in American Industry.—Alice Hamilton calls the attention of the medical profession to this increasing menace in American industry. Since the beginning of the war, benzene, which is a much more powerful solvent than petroleum benzin and naphtha for fats, gums, and resins, and which is below the latter in price, is being increasingly used in the industries. It is exceedingly difficult adequately to protect men engaged in work in and about an apparatus that has been used for the manufacture or storage of benzene; even a Draeger helmet may not be enough. In acute benzene poisoning the blood in the heart and vessels is fluid, in the veins of the abdomen, engorged. There are hemorrhages into the gastric mucosa, bloody foam in the air passages, no benzene odor and no benzene demonstrable chemically. Sury Bienz records finding conspicuous bright red spots over the body, bloody fluid and dark petechial hemorrhages into the gastrointestinal mucosa and pleuræ, general venous congestion, and bloody mucus in the air-passages. There is also profound blood destruction. Lehmann found that loss of consciousness might occur when there were from two to three parts of benzene to 100,000 parts of air. An instance is recorded by T. M. Legge of a man dying of typical benzene poisoning when there was 1 part of benzene to 10,000 parts of air. The practical difficulties in the way of overcoming the danger of this solvent in industry seem to be insurmountable. To the physician it can seem only a disastrous innovation in industry.

3. The Therapeutic Index of Silver Arsphenamine: Comparison with that of Arsphenamine and Neo-Arsphenamine.—Abraham Strauss, D. M. Sidlick, M. L. Mallas, and B. L. Crawford have treated three groups of 25 patients each with silver arsphenamine, arsphenamine, and neo-arsphenamine, respectively. The dosage employed throughout the treatment was silver arsphenamine, 0.2 gm.; arsphenamine, 0.4 gm., and neo-arsphenamine, 0.6 gm. The determination of the comparative values of the three drugs was based on the Wassermann reaction. The seropositive findings in Group I were changed to negative in only one instance. In Group II the positive Wassermann reaction became negative in 13 cases. In Group III the Wassermann reaction was changed from positive to negative in nine cases. From these serological comparisons it is concluded that the spirocheticidal activity of silver arsphenamine is far inferior to arsphenamine and neo-arsphenamine in the treatment of syphilis.

4. The Antiscorbutic Value of Dehydrated Fruits.—Philip F. Eckman records the results of feeding experiments in guinea pigs to determine to what extent, if at all, antiscorbutic vitamines are contained in dehydrated fruits. The fruits used were peaches, apricots, apples, pears, prunes, cherries, and loganberries. It appears from these experiments that the only one of these dried fruits containing sufficient antiscorbutic vitamine to maintain the life of a guinea pig when fed in not too excessive quantities is peaches. Of this fruit it appears that 4 gm. a day, although insufficient to prevent scurvy, delay it for three or four months. Although further trial did not bear it out, earlier experiments indicated some value in apricots and apples. Pears, prunes, loganberries, and cherries seemed to have even less value.

7. The Collection and Preservation of Human Milk.—Paul W. Emerson presents this preliminary report, describing the work of the Boston Floating Hospital in co-operation with the Lying-In Hospitals and obstetricians in collecting human milk daily in the mothers' homes. He also tells of their experimental work with methods of preserving human milk. He was led to try, after reading Finkelstein's experiment, a method of

preserving the fat alone, and homogenizing it with cow's skim milk. By preparing a 12 per cent. fat from human milk, combining this with cow's skim milk, and adding lactose, a milk was obtained with the formula: Fat, 3 per cent.; sugar, 7 per cent.; protein, 1 per cent. This human milk fat can be preserved at least a month. When combined with cows' skim milk and fed to a baby for a short period of time, one may expect a gain in weight equivalent to that obtained with whole breast milk. Such milk might be used to advantage with babies who have an intolerance for cows' milk fat, but the milk prepared in this way is expensive and difficult to prepare. Drying human milk, the writer feels, is more feasible and much less expensive.

9. The Etiology of Orthostatic Albuminuria.—Willy Rieser and Sidney L. Rieser have made observations from which they conclude that orthostatic albuminuria is due to renal stasis caused by a compression of the left renal vein, in arterial pincers composed of the aorta and the mesenteric artery. These arterial pincers become operative when the aorta is projected forward by a lordosis or when the mesenteric artery is pulled to tautness by the visceroptotic tug from the mesocolon. The writers hope to be able to show whether the abdominal visceroptosis alone can produce it, or whether both are productive factors in the productive mechanism. The magnitude of the pulse pressure holds no relation to the albuminuria, nor has it any influence on the elimination of water, urea, or chlorides. It is hoped that further investigation will throw light on what influence the circulatory disturbance of the left suprarenal gland may have on the general vasomotor instability in this condition.

The Lancet.

February 11, 1922, ccii, 5137.

1. Some Aspects of Bronchial Asthma. Arthur Latham.
2. Hypnosis and Suggestion. William Brown.
3. Ingleby Lectures on the Endocrine Functions of the Female Reproductive Organs. Swale Vincent.
4. The Treatment of Gastric Ulcer. I.—Berkeley Moynihan. II.—A. J. Walton.
5. Complete Heart-Block with Post-mortem Examination. Henry Waldo and C. E. K. Herapath.
6. The Nomogram as a Means of Calculating the Surface Area of the Living Human Body. W. M. Feldman.
7. A Precipitation Test for Syphilis. C. Y. Wang.
8. Perforated Gastric Ulcer. E. G. D. Milson and Lionel E. C. Norbury.
9. Plague, Cholera, and Typhus in Turkey and Adjoining Countries. A Twelve Months' Record. F. G. Clemow.

3. Ingleby Lectures on Endocrine Functions of the Female Reproductive Organs.—Swale Vincent enumerates some general considerations indicating that the ovaries are not the only organs which determine the secondary sexual characteristics. Thus it is urged that the quality of "femininity" is dependent upon the manifold activities of all the internal secretions, including those coming from the adrenal bodies, the thyroid, the pituitary, as well as those derived from the ovary, corpus luteum and placenta. The adrenal cortex appears to have certain important functions in connection with the development and growth of the sex organs. Tumors of the adrenal cortex are frequently associated with sex abnormalities. When cortical tumors occur in the female there is a development of male secondary characters and hypoplasia of the internal genital organs. The adrenal cortex is enlarged during breeding and pregnancy. As for the thyroid, this is relatively larger in women than in men, and this is especially noticeable during puberty, pregnancy and menstruation. Sexual intercourse increases the size and activity of the gland. It is stated that the ovaries exert an inhibitory action on the thyroid; in fact, the latter becomes hyperactive after castration; and there is an increase of the colloid substance. This is the cause, it is said, of the large number of cases of exophthalmic goiters after the menopause. The pineal gland is causes a rapid development of the genital gland. The pituitary has an influence on many of the metabolic functions necessary for the establishment of puberty. Removal of the thymus, performed before puberty, causes a rapid development of the genital gland. The whole subject is complicated by the influence of the various internal secreting organs upon each other. The psychological characteristics of women are, of course, partly accidental and dependent on social conditions, but of those which are more fundamental, some depend on the influence of the ovary, and others on general metabolic processes, which are largely conditioned by the general reactions of the internally secreting glands.

4. The Treatment of Gastric Ulcer.—Berkeley Moynihan adds certain figures to his statistics on gastric ulcer presented before the British Medical Association in July, 1920. The number of gastrectomies for gastric ulcer which he has performed since 1909 is 118. There have been two deaths, a mortality of less than 2 per cent. There is only one unsatisfactory case in the series; in none have there been the development of carcinoma or a return of the ulcer. In the same period he has operated upon 651 cases of duodenal ulcer with three deaths. He finds gastrectomy the most satisfactory operation. All other methods fail in one or more particulars. Gastrectomy has a small mortality, the quality of the recovery is excellent, and the results are as near perfection as they can be. The operation of gastrectomy has been much simplified. When the stomach is freed from the duodenum and along the two curvatures the question to decide is as to the method of attachment of the jejunum to the part of the stomach which remains. At the present time Moynihan joins the cut end of the stomach to the jejunum drawn straight across the colon near the splenic flexure from left to right. The proximal part of the jejunum meets the greater curvature of the stomach and no jejunal loop is left. This reduces the operation to its simplest terms, and to the easiest and speediest performance.

5. Complete Heart-Block with Post-Mortem Examination.—Henry Waldo and C. E. K. Herapath report this case occurring in a bachelor 62 years of age, who contracted a primary sore 25 or 30 years ago. He suffered from attacks resembling petit mal. His systolic blood pressure was 110 mm. Hg. The diagnosis was heart block with destruction, probably complete, of the auriculo-ventricular bundle. He died in an unconscious attack. Post-mortem complete destruction of the bundle of His was found; the junctional tissue had been picked out for attack and the damage was almost confined to this area, the whole bundle being destroyed, even to the upper part of the two main branches. The heart had evidently been contracting for some years, with no connecting link between the auricles and ventricles; in other words, the stimulus for the ventricular contractions had been rising from some part of the bundle, and the rhythm was what is termed the idioventricular rhythm. Cessation of ventricular action occurred because the fibrosis finally cut the ventricles off from this last stimulus-producing area, and no further stimulus for contraction could reach the ventricular muscle.

British Medical Journal.

February 11, 1922, i, 3189.

1. The Choroid Plexus and Psammomas. John Bland-Sutton.
2. The Treatment of Gastric Ulcer. William Hale-White.
3. Gastric Syphilis. David J. Galloway.
4. Some Principles of After-Treatment in Acute Abdominal Disease. H. W. L Molesworth.
5. A Case of Primary Carcinoma of the Lung. G. S. Hayes and J. F. Gaskell.
6. Blindness as an Immediate Sequel of Influenza: Recovery. Stanley E. Denyer.
7. The Lettsonian Lectures on Amebic Liver Abscess. Leonard Rogers.

1. The Choroid Plexus and Psammomas.—John Bland Sutton shows that the structure of psammomas supports the idea that they arise from choroid plexuses and arachnoid tufts. The tissue is arranged in whorls, and in the center of each there is a blood vessel. The idea of a cluster of villi surrounded by fibrous tissue, and the whole encapsulated by a laminated capsule, is irresistible. When the mass of choroid plexus or arachnoid tuft, is completely invested, and the growth arrested, the sequestered epithelium becomes impregnated with cholerterin sand. Hence the picturesque names—psammoma, cholesteatoma, and pearl tumor. A psammoma infiltrated with cholerterin is a dead tumor, but it rarely dies before it has wrecked the life of the man or woman by damaging brain or spinal cord. The clinical symptoms produced by these extraordinary tumors sometimes permit of exact localization; often

hey are complicated tangles difficult to unravel. The illi of the arachnoid erode bone, as the Pacchionian oramina prove; chorionic villi, normal and abnormal, an penetrate the walls of the uterus, and ovarian papil-omas in a favorable environment erode bone. These acts furnish sufficient evidence to justify the removal f psammomas from the miscellaneous group at present abelled endotheliomas.

3. **Gastric Syphilis.**—David J. Galloway asserts that astric syphilis, while by no means common, is by no neans the excessive rarity it is commonly assumed to e. The reason for this opinion may be owing to the act that the writer's experience is almost wholly with siatics. Of four cases which he reports only one ccurred in a European. Clinically these cases were ery presentable pictures of three distinct gastric con-itions—malignant tumor, gastric ulcer, and a subacute astritis. From the histories all of them were the esult of acquired disease. The only symptom that ight give a pointer as to the nature of the lesion is he character of the pain. While there do occur cases f malignant disease of the stomach which throughout heir course are "silent," they are the exception. Pain n gastric syphilis is never at any time pronounced, but s always there, dull and constant, sometimes better, ometimes worse, especially at night, and limited to a one extending right around the body a little below the evel of the diaphragm. There is, of course, always he possibility of such cases merging into malignancy. A second group of cases, mimetic of gastric ulcer, are ot as a rule difficult of diagnosis. Though vomiting s a symptom, excessive vomiting is unusual, and unless f spinal origin not easily explained. The symptoms ommon to all were thickening, almost amounting to umor formation, in the epigastrium, tenderness on pal-ation, vomiting and presence of blood in the vomited natter. In ulcerated gumma of the stomach there is constant substratum of pain, not much aggravated by ating, but greatly so by the effort of vomiting, radiat-ng laterally, and forming a girdle of pain which, as sual, is worse at night. Hemorrhage in gastric ulcer s usually copious, coffee-ground or bright red color. n gummatous ulcer the blood comes up only with food, s in small clots, and bright red only at the end of a evere effort at vomiting. In that class of cases re-embling subacute gastric catarrh, some assistance nay be had from test meals, as all the cases in which t was given had a pronounced hyperchlorhydria. The igns of gastric syphilis are enlargement of the liver and occasionally also of the spleen), with smooth out-ine, present in three-fourths of all cases; secondly, apid development of cachexia, and thirdly, stigmata of syphilis. The real test is the empiric, the therapeutic, nd that may be applied from both its negative and positive aspects.

5. **A Case of Primary Carcinoma of the Lung.**—J. S. Haynes and J. F. Gaskell report this unusual case n which the chief points of interest are: The age f the patient, 27 years; the duration of the symptoms, ive months; the similarity to tuberculosis of the lungs —wasting, fever, cough, hemoptysis, pleural effusion, nd pneumothorax; the temporary improvement under pen air treatment due to the elimination of secondary nfection; the total absence of pain; the involvement f one lung only, and the rapid enlargement of the nediastical and cervical glands. The right lung was extensively involved while the left lung was unaffected, ut yet the left cervical glands were considerably more ffected than the right, the path of spread being prob-bly among the course of the thoracic duct.

The Practitioner.

December, 1921, cvii, 6.

1. Epilepsy and Some Kindred Attacks. Robert Armstrong-Jones.
2. Medical Aspects of Enlarged Prostate. Robert Hutchison.
3. Orthopedic Surgery. A. H. Tubby.
4. Climatic Treatment of Early Phthisis in Well-to-do Persons. W. Gordon.
5. Non-Gonococcal Urethritis. R. L. Spittel.
6. Subacute Bacterial Endocarditis. J. W. McK. Nicholl.
7. Rheumatoid Arthritis. The Lesson of Twenty-five Years' Experience. Naunton Davies.
8. A Note on the Treatment of Vomiting in Malaria. F. Lomax Wood.

1. **Epilepsy and Some Kindred Attacks.**—Robert Armstrong-Jones says that in the treatment of epilepsy it is essential to separate cases of organic brain disease from those due to such causes as intestinal troubles, worms, dentition, lead-poisoning, uremia, and the diathetic diseases. In the treatment of idiopathic epilepsy it is most important that the epileptic be kept in good general health. The best remedies for controlling the fits and the three bromides in 5-grain doses, together with 1 grain of the soluble luminal sodium twice a day, on alternate days, and then stop three days, late in the afternoon and early in the evening, so as to secure the maximum effect toward bedtime. The biborate of sodium with bromides may be substituted if there is a tendency to drowsiness. Hydro-bromic acid has in drachm doses three times a day been most beneficial in cases with noises in the ears, and for these tablets of oxy-quinotheinmeine have been effective. Monobromide of camphor in 5-grain doses has helped to control the number of fits, oxide of zinc in 3-grain doses, and in children tincture of belladonna in 10-minim doses three times a day. Nitrate of potassium, 5-10 grains has been useful when there has been an increase of blood pressure. The reputed value of some physical remedies, such as deep inspiration before the aura, is confirmed and may ward off an attack, while compression of the carotids, and even ligature fo the vertebrals, have their advocates, but the value of some remedies may be due to suggestion. It is helpful in treatment to record the number of fits daily and nightly, and the hour at which they occur, keeping a chart of the sleep, the organic functions, and the body weight in order to compare these under the influence of different remedies. This chart—which can be kept by the relatives—provides a useful history of the progress of the case and keeps up an interest in the cure.

8. **A Note on the Treatment of Vomiting in Malaria.**—F. Lomax Wood has found that 7 to 8 minims of adrenalin hydrochloride in 1½ ounces of water controls attacks of vomiting in malaria. He first gave the adrenalin solution for the control of hematemesis and found that it rapidly brought about a cessation of vomiting. The adrenalin solution has relieved the vomiting in all patients suffering from malaria to whom it has been given.

Schweizerische medizinische Wochenschrift.

January 19, 1922, lii, 3.

Hypertrophy of the Hypophysis in Pregnancy.—Jung refers to the original discovery of this coincidence by Erdheim and Stumme, with the occasional supervention of acromegalic alterations in the women. There is abundant evidence of an antagonism between gonads and hypophysis. In gestation underfunction of the ovaries is associated with overfunction of the hypophysis. The increased size of the latter appears in radiograms through the expansion of the sella. Despite this enlargement it seldom leads to clinical manifestations of a severe character. In but two recorded cases did the hypertrophy cause symptoms of acromegaly or tumor in the sella. Petty symptoms pointing to the hypophysis are not so rare. The aim of the author is to add to the two severe recorded cases another personal to him, which is strikingly like one of its predecessors. The woman was forty-five years old, seven months pregnant, with history of nine normal pregnancies in which naturally there were no visual disturbances. Ever since the last conception she has complained of progressive impairment of vision. On admission with this history an enlargement of the hypophysis was suspected and the *x*-ray showed the correctness of the assumption. The condition was so urgent from the standpoint of the prevention of blindness that abdominal hysterotomy was at once performed with tubal sterilization. At the end of three days the patient could distinguish objects and individuals. Aside from the evidences of compression of the chiasm there were no other symptoms, hyperpituitarism being absent throughout in all of its manifestations. At the present time there is some improvement in visual acuity, but the fundal finds point to considerable permanent damage of both optic nerves. There is complete bitemporal hemianopsia with contraction of the visual fields to the fixation point.

Book Reviews.

THERAPEUTIC IMMUNIZATION IN ASYLUM AND GENERAL PRACTICE. By W. FORD ROBERTSON, M.D., Pathologist to the Scottish Asylums. Price, $4.00. New York: William Wood and Company, 1921.

THERAPEUTIC Immunization implies the immunological attack on diseases wrought through the activity of the specific stimulation of the defensive mechanism of the body against actual bacterial invasion with the object of destroying or expelling the offending organism, thereby restoring health to the patient.

Practically, the book deals especially with the administration of vaccines, or better, bacterins. Dr. Robertson discusses the value of autogenous and stock vaccines and summarizes the topic of "detoxicated" vaccines, mentioned especially by Dr. David Thomson. The inference is drawn that detoxicated vaccines may be objected to on the ground that their exact dosage is not easily regulated and that the chemistry involved in their preparation permits the inference that the detoxicated vaccine no longer stands in physical relation with the organism causing the disease.

The bacteriological methods incident to the practice of therapeutic immunization are discussed in a series of chapters characterized by intense practicability in that the technque is brought within reach of average clinical training. It is important to observe the author's criticism on the standardization of vaccines in which he points out the error incident to standards of turbidity and actual counts. The method proposed is accredited to J. J. Ritchie and depends upon the weight in milligrams of bacterial protein present in each cubic centimeter of vaccine. It is recommended that they be prepared of such strength that one-tenth of a cubic centimeter contains the initial dose of the vaccine in question.

The remaining half of the book is devoted to a brilliant résumé of the indications and methods for the treatment of bacterial infections by therapeutic immunization, the author dividing the subject into diseases grouped as originating from types of organisms: (1) Staphlyococci; (2) Streptococci; (3) Coli-typhoid Bacilli; (4) *Bacillus proteus;* (5) Gramnegative diplococci; (6) The Bacillus of diphtheria; (7) Diphtheroid bacilli; (8) Influenza bacillus; (9) Tubercle bacillus; (10) *Diplococcus crassus;* (11) *Bacillus septus;* (12) *Micrococcus tetragenus;* (13) *Bacillus pyocyaneus;* (14) Strepothrices; (15) *Bacillus lepræ;* (16) *Bacillus mallei.*

In conclusion, the author summarizes the cause of failure of therapeutic immunization, mentioning "the unsuitability of the case, a defective bacteriological analysis, faulty vaccines, wrong dosage, relapses from natural causes, the acquirement of new or reinfection, the infection of closed cavities, toxin saturation, and persistent hypersensitiveness." Of these, the one that leads most to unsuccessful therapeutic immunization is the defective bacteriological analysis.

There are many good reasons for welcoming so authoritative a treatise on a subject in which our knowledge is fragmentary and scattered. Dr. Robertson advances principles, the following of which will eliminate the improper and random use of vaccines and will make for the standardization of an excellent therapeutic method applied according to scientific indications and in anticipation of defintely premeditated results.

DIE IMPOTENZ DES MANNES (Die psychischen Störungen der männlichen Sexualfunktion) Störungen des Trieb- und Affeklebens. IV. Von Dr. WILHELM STEKEL, Nervenartz in Wien. Price, 75 marks. Berlin and Vienna: Urban & Schwarzenberg, 1920.

THIS fourth volume of Stekel's work on "Disturbances of the genesic function and their effects" is a pretentious book of nearly five hundred pages. It is divided into twenty-one chapters, which deal with impotence from every viewpoint, but particularly through the vision of the psychoanalyst. He gives adequate consideration to the social relation of men and women, the physiology of coition, unconscious love and hate, onanism, and occupation as influencing impotency. One chapter is give to special conditions affecting male potency. He furthermore discusses the relation of the impotent man to general social and economic institutions and conditions, such as religion, war, and criminality. The section on Pollutions was written by Dr. Tannenbaum of New York. The work abounds in case reports and literary references illustrating specific mental states. It is replete with aphorisms such as "Inventions are the spiritual translation of most sexual problems into the language of technique;" "Man's erectile ability begins with birth and ends with his death;" and "Man is only as old as he feels. Impotent becomes the man who gives up his potency." The last is small consolation to the sexual cripple suffering from sequelæ of venereal infection. The reader is impressed with the author's sincerity, mental honesty, his desire to teach, and the generous credit given to his cotemporaries.

THE CARE OF EYE CASES—A Manual for the Nurse Practitioner and Student. By ROBERT HENRY ELLIOT, M.D., B.S. (Lond.), Sc.D. (Edin.), F.R.C.S. (Eng.) Lieutenant-Colonel I. M. S. (retired); Late Superintendent of the Government Ophthalmic Hospital Madras, and Professor of Ophthalmology, Medical College, Madras, Honorary Fellow and Gold Medalist of the American Academy of Ophthalmology and Oto-Laryngology, Lecturer in Ophthalmology, London School of Tropical Medicine, Ophthalmic Surgeon to the Seaman's Hospital Society, to the Hospital for Tropical Diseases, Endsleigh Gardens, London, and to the Prince of Wales' Hospital, Tottenham With 135 Illustrations. Price, $4.50. New York: Oxford University Press, American Branch. 1921.

THE first part of this little book contains a great deal of interesting and instructive material not only for the nurse but even for the practicing eye man, as it treats of subjects that are accepted as matters of fact and therefore passed over in most of the text-books. While the average training nurse in a general hospital may be taught the care of general surgical, gynecological and other cases, she comes but rarely in touch with eye cases, and therefore requires special training to become competent in handling them. Besides, the eye cases require greater care and gentleness than possibly any other postoperative cases, as negligence may be fraught with irreparable loss of vision. It is preeminently here where careful attention to details and a clear conception of the aim of the operation count for much. The eminence of the author and his enormous practical experience lend great weight and authority to all he has to say. The second part of the work is devoted to a very cursory review of various eye diseases. It is rather doubtful whether such a superficial and fleeting summary or digest of important pathological eye conditions will serve the purpose of enriching the mind of the nurse with any knowledge on eye conditions. There is surely a limit to conciseness beyond which it becomes absolutely useless, and we hope that in future editions the author will devote more space to the diseases of the eye the elementary knowledge of which is of such great importance to the eye nurse.

HEART DISEASE AND PREGNANCY. By Sir JAMES MACKENZIE, M.D., F.R.C.P., LL.D., Edinburgh and Aberdeen, F.R.S., F.R.C.P.I.; Hon. Consulting Physician to His Majesty the King in Scotland; Director of the Institute for Clinical Research, St. Andrews; Consulting Physician to the Victoria Hospital, Bombay, and the London Hospital. Price, $3.50. New York: The Oxford University Press, American Branch. 1921.

THIS is a book of which apparently there is a real need. The author said that his attention was called to the subject when listening to a paper on "Pregnancy Complicated by Heart Disease," in which the reader gave evidence of knowing nothing of the advances made in cardiology during recent years. Sir James was thus led to examine a number of the latest treatises on Obstetrics and found that the same ignorance was displayed by them all. The result of this quest was a determination to supply the missing information which is done in the present book in the author's usual lucid style. Every obstetrician should, for the sake of the suffering woman women who look to him for help, make himself thoroughly familiar with the modern teaching in cadiology so far as it affects his special practice, and this he can do by a study of this excellent little book.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held January 19, 1922.

THE PRESIDENT, DR. GEORGE DAVID STEWART, IN THE CHAIR.

Digitalis—Its Absorption in Man.—Dr. CARY EGGLESTON and Dr. JOHN H. WYCKOFF presented this communication from the department of Pharmacology, Cornell Medical College, and the Second (Cornell) Division, the Third (New York University) Division of Bellevue Hospital. They stated that as was well known different samples of digitalis differed widely in their effectiveness when administered to man, and likewise when administered to animals. The literature in regard to the absorption of the various digitalis preparations was scant in amount. Dr. Hatcher and one of the authors for some years had been investigating the action of the various digitalis preparations. They had worked out a method by which the dosage of various digitalis preparations could be standardized. This they had called the "cat unit" by which was meant that amount of the drug which was just sufficient to kill one kilogram of cat when slowly and continuously injected into the vein of of the animal. This was expressed in milligrams of the drug. They had also demonstrated in their former articles that in order to induce effects rapidly by oral administration digitalis must be administered in larger doses than formerly were considered desirable or necessary. They had further shown that 0.066 of a cat unit or 0.023 mg. per pound of body weight was the average therapeutic dose of digitoxin, and also that there was great variability in the degree of absorption of various preparations. Wedd had shown that infusions of digitalis leaves contained a chloroform soluble and a chloroform insoluble part and that the chloroform soluble portion was absorbed at least as rapidly as the best tinctures. Hatcher had shown that there was a part of the digitalis body which was rapidly absorbed and rapidly eliminated and produced a fleeting effect. The present paper had to do with the comparative action of various pharmaceutical preparations of digitalis and that of numerous preparations and combinations of preparations purified by a special method which was described in detail. The action of these purified preparations and of the ordinary pharmaceutical preparations was observed in a series of some seventy patients suffering from auricular fibrillation, sinus arrhythmia, partial heart block and extrasystole. The observations made in 52 of these cases were tabulated, including data in regard to the dosage in cat units, the time at which the first effects of the various preparations became evident, what these effects were, the time at which they reached their maximum intensity, etc. The doses administered varied from 0.04 to 0.073 of a cat unit per pound of body weight, the average dose being 0.054 of a cat unit per pound. Among the more general observations brought out by this investigation were the following: The present observations confirmed former work as to the value of the comparatively large doses of digitalis advocated by the writers. The effects of the drug were manifested in a short time after its administration, from six to eighteen hours, instead of at the end of two or three days, as formerly believed. The effect of digitalis was as a rule manifested before nausea or vomiting appeared and the appearance of these symptoms was a warning to desist from the further administration of the drug at least temporarily. With the purified preparations the size of the dose and the variation from the average dose was not quite as marked as with the ordinary official preparations. In a former study the variation was 50 per cent. above and below the average; in the present study with the purified preparations the variation above and below the average dose necessary to produce similar effects was 30 per cent. In a general way, it might be stated that on the whole the average high grade, pharmaceutical preparations of digitalis on the market were fairly trustworthy agents. One must ascertain the proper dosage for each individual patient. There were still two undetermined factors involved in the estimation of digitalis dosage. One of these factors was the variation in the strength of different digitalis preparations and the other was the difference in the response of the individual heart to the drug.

Dr. ALFRED E. COHN said they had all no doubt been struck by two points in the paper, which two points presented new and important additions to the knowledge of the use of this drug. The first one was that the action of digitalis could be obtained in a few hours after its administration—in some instances even as soon as 1½ hours. It was the general impression held several years ago that it required two or three days before one could count on getting the effect of digitalis. This was a very important advance from the clinical standpoint. The second point was that it was possible to obtain a satisfactory effect from digitalis before nausea and vomiting was brought on. He recalled that a few years ago an eminent professor had made the statement that one could not be certain of an effect from digitalis until the patient was seen to be nauseated or to vomit. When one recalled how serious or at least disagreeable these untoward symptoms were it was easy to see how great the advances were which had been made. Dr. Cohn said he had really nothing to add to what Dr. Eggleston had said nor had he anything new to add to the state of knowledge of electrocardiography about which he was asked to speak. He had, however, brought a few slides which might be of interest as they demonstrated the relation of changes in the T-wave in the electrocardiogram to the administration of digitalis. He showed records of one case in which 1.5 gms. of digitalis had been administered. The inversion of the T-wave which was fully developed on December 7th, continued for 19 days. Then the T-wave reverted to its initial form. While Dr. Eggleston had shown how rapidly digitalis was absorbed, he had not said much in regard to the length of time during which its effect was manifested. Cases like that, the curves of which were projected on the screen, showed the prolonged influence of the drug. More recently they had been interested in quinidine. Electrocardiograms from a patient so treated showed changes similar to those due to digitalis. Digitalis, therefore, did not exert a specific effect so far as the electrocardiogram was concerned. An inspection of the slides showing the inversion of the T-wave showed that the process really began in the R-T interval before the beginning of the T-wave; the changes in the heart that produced this change had not yet been satisfactorily explained. Neither was the mechanism by which the change was brought about understood. However, Dr. Cohn recalled observations which had been made with the galvanometer and which he described by means of a diagram, which seemed to show that the inversion of the T-wave was dependent upon prolonged activity in the lower portion of the ventricular muscle. He showed tables, demonstrated at the Academy by Dr. Levy in 1920, in which some of the phenomena described by Dr. Eggleston were illustrated. One of these showed that when the heart's mechanism was normal the onset of the inversion occurred 24 to 48 hours (average 36 hours) after the administration of digitalis and lasted 6 to 15 days (average 10 days). Thirty-six hours was rather a long period before the onset of inversion of the T-wave. In 27 cases of auricular fibrillation examined by the electrocardiograph with reference to this point it was found that onset of the change occurred in 7 to 48 hours, the average time being 24 hours. An effect on rate was seen as early as from 1 to 11 hours (average 3 hrs. 15 mins.) after the administration of 0.7 to 2 grams of the drug given in two doses with an interval of one hour. The duration of the inversion of the T-wave was on an average 12 days, the shortest duration being 3 days and the longest 31 days. It was rather an extraordinary thing that digitalis should preserve its action as long as one month after a dose administered on a single day, and the point he particularly wanted to bring out was that the duration of the inversion of the T-wave in the electrocardiogram might be employed to give one a conception of the rate at which digitalis was eliminated. To have this method was important in the absence of a chemical or other means of making such an estimation.

Dr. ROBERT A. HATCHER said the composition of digitalis was known to be extremely variable and anything like a discussion of the composition of the various

preparations was out of place at this time. He might say, however, that all the therapeutic effects which followed the oral administration of digitalis were probably due to digitoxin or digitoxin-like substances. There was no way of estimating the amount of digitoxin in any preparation. There were preparations of digitalis on the market for which it was claimed that the amount of digitoxin had been estimated. But this was not correct for when the manufacturer referred to digitoxin he meant impure substances. There was present in digitalis a principle which was eliminated in a few hours, the nature of which was unknown and had never been described. The only advantage in this purified digitalis was that it was possible to estimate the proportion of the preparation which was active, that was the proportion of digitoxin and digitoxin-like substances. They had tried to do that with the tincture but they had not been able to determine the amounts present in the tincture. As to the nausea and vomiting, the evidence seemed to indicate that the amount of digitalis required to produce nausea and vomiting was proportional to the amount of digitoxin-like substances present in the preparation and not proportional to the total activity of the tincture. They had not been able to prepare the digitoxin-like substance in any uniform way. Work was under way which afforded hope that a process would be devised by which any chemist or pharmacist could make the preparation.

Dr. B. S. OPPENHEIMER said there was a large gap between the preceding speakers who were authorities on digitalis and pharmacologists and himself who had had experience with digitalis only as a hospital doctor. He believed that this gap between the pharmacologists and the practitioner should be bridged over so that the two might get together as was done in the particular instance which he wished to cite. (In this connection it might be of interest to mention that in 1910 Professor Cushny, an authority on digitalis, used to make rounds with Sir James Mackenzie once a week.) In 1919, it was noticed in several wards of Mt. Sinai Hospital that the standardized digitalis in the usual dosage seemed inactive in cases of auricular fibrillation, and the matter was referred to him for investigation. Three cases of auricular fibrillation which should have shown digitalis effects were selected: (1) Male, aged 64, auricular fibrillation and pulse deficit. He received 540 m. of the tincture of digitalis and 21 ounces of the infusion in 23 days (equivalent to a total of 134 c.c.). After 23 days he showed no slowing and the pulse deficit persisted. (2) A male, aged 24, mitral stenosis and insufficiency, auricular fibrillation, pulse deficit. He received 3090 m. of tincture in 38 days with no effect. (3) Male, aged 23, mitral stenosis and insufficiency, auricular fibrillation, constant pulse deficit, and rapid rate in spite of 3735 m. of tincture of digitalis (equivalent to a total of 233 c.c.), in 43 days. Ordinarily therapeutic or even toxic effects would have followed such doses. The three patients received at least five times the maximum average dose in the ordinary tincture the speaker had been using. It was true the dose had been distributed over fairly long periods. A sample of this digitalis was turned over to Professor Hatcher and Dr. Eggleston. They reported that the specimen was of average activity when tested by the biologic method, but that it was very low in the chloroform-soluble fraction, that was, in the fraction that was readily absorbed and slowly excreted. About the same time two other samples of inactive digitalis came from Cleveland and one from New Jersey, and it was found that all three came from the same reliable drug house. On further investigation it was found that during the war period, this digitalis came from an unusual source, and the matter was promptly corrected. They learned then for the first time that not only should digitalis be assayed for its activity, but that absorbability was a factor that must be considered. Professor Hatcher subsequently gave them a supply of the purified tincture, which Dr. Eggleston and Dr. Wyckoff had been using clinically, and with it they had satisfactory results.

Dr. T. STUART HART said he thought all would agree that digitalis was a real drug. Some years ago they had reached the conclusion that in order to get results with this important therapeutic agent it must be administered in quantities to get the physiological effects. Then the question arose as to how they were to specify in minims or ounces or grams the amount of drug they were to administer. When they found out how most patients with auricular fibrillation responded to the administration of digitalis by a slowing of the rate and a diminution in the deficit it seemed an easy matter to standardize the dosage. But then their troubles commenced. They found that with different preparations different quantities were necessary in order to produce full therapeutic effects. At this point the pharmacological assays, chemical and biological, came to their aid, and frogs and cats were pressed into service. These tests demonstrated that certain digitalis leaves contained much more of the active glucosides than others, so they then selected good leaves properly preserved. Further, certain preparations kept better than others and they began to use only freshly prepared stock and to devise better ways of preservation. Even then they did not get uniform results from the standard dose. Dr. Cohn gave them a new method of testing the earliest evidences of digitalization and this was one more step forward in determining dosage accurately. Then the determination of the rate of elimination was studied and Dr. Pardee and others showed them that the time element was a very important one, that elimination occurred at a rate which they could definitely estimate; it made a great deal of difference whether one administered a given amount of digitalis in a period of two days or spread the same amount over a week. The degree of saturation became an important consideration. To eliminate the time element Dr. Eggleston introduced his so-called massive doses and this simplified the study of dosage. With all this added knowledge their results were still very uneven and from time to time they all had experience such as Dr. Oppenheimer had just described. Dr. Hatcher, who had been a leader in all these studies, discovered that certain fractions obtained by extraction of the leaf were more readily absorbed than others and that certain leaves contained more of these absorbable fractions than others. The work of Dr. Eggleston and Dr. Wyckoff presented in the paper of the evening had taken this problem of absorption from the laboratory of animal experimentation to the bedside. In a well-equipped hospital under effective supervision and control they had made these observations which appeared to him to effectively prove a vast difference in the rate of absorption of these fractions of digitalis leaf. He thought they should be congratulated on an excellent piece of work and on the fact that they had brought results obtained in the clinic and which therefore were of immediate practical value. Every one of the steps he had recounted had brought them nearer to an understanding of an approximation of an average standard dosage of digitalis. He felt, however, that even with our present knowledge we could not state the exact dose which the individual which we cared for in the home should receive to be effectively digitalized. There one could not have the elaborate instruments to watch every change in the heart activity, nor could one have as a rule the close personal supervision which a well organized hospital afforded. As the readers of the paper had pointed out there were still some unsolved variables such as the different rates of absorption in different individuals and possible also a difference in the reaction of individual hearts to the drug. The figures presented showed a considerable variation in the time of the initial reaction and the time and effective amounts when cases were compared which were treated with the same purified tincture. These differences, Dr. Hart said, were too great to be disregarded and he, therefore, believed it was safer, in general (unless the need was very urgent) to administer the drug gradually, watching the effects. The use of this new "purified tincture" apparently showed a great improvement over old tinctures in the variation of dosage to which different patients reacted. With the old tinctures the variation in dosage to which different patients reacted was 50 per cent. above and below average. With the purified tinctures this difference had been reduced to 30 per cent. above and below average. In an urgent case he felt one could safely give the large doses outlined in the paper. In reference to the symptoms by which the effect of full digitalization should be measured in the home, the elec-

rocardiogram need not be discussed; this was of great alue when available but of course was usually impos- ible. In auricular fibrillation digitalis should be pushed ntil the rate was in the neighborhood of 70 and the ulse deficit had disappeared. In cases with a regular eart one might use the polygraph to detect changes in he conduction period or with eye, ear and finger one ould watch for changes in the rhythm indicating a artial block or a coupled rhythm, etc. To give digi- alis intelligently one must be able to distinguish be- ween sinus arrhythmia, auricular fibrillation, extrasys- oles, partial heart block, etc. Nausea and vomiting ere important symptoms in patients with serious heart isease and cardiac insufficiency, were frequently due to hronic passive congestion of the viscera and usually hat these patients needed was digitalis. If one was iving only small doses, for example 0.01 cat unit per ound of body weight, that was about 5 minims three imes a day for a patient weighing 150 pounds, and ausea developed one should not attribute this to digi- alis, it was much more likely due to the need of more igitalis. Dr. Hart said that, in his opinion, while each ne of these lines of investigation had added very reatly to our knowledge of this valuable drug, and hile the massive dosage was of very great value in ex- erimental work with patients under the best control, e believed that in general practice the more gradual pproach to digitalization was to be preferred. The size f the dose must be adapted to the individual patient. ne should get the very best preparation of digitalis e could secure, made from potent leaves, in a form hat would not deteriorate, and the kind that was best bsorbed, study and use this preparation until he new all about it and what he might expect from it, but bove all else he should study the reactions of the in- ividual patient.

Dr. ROBERT H. HALSEY said that the question of he control of tachycardia by digitalis was important to nderstand. It was not necessary to spend time to rove the possibility for it was well known that some achycardias could be controlled. Tachycardias could e controlled by the various methods of dosage which ad been outlined by previous speakers and were famil- ar enough to those present not to require more time in iscussion. What he desired to emphasize was the ffect that digitalis exerted upon the rhythm and rate f the heart. This he could best accomplish by showing n the screen a few lantern slides of illustrating elec- rocardiograms. The electrocardiograms of three cases f auricular fibrillation and impure auricular flutter, vith grossly irregular and regular ventricular rates rom 140-160 per minute, showed that the rate could be lowed very promptly by digitalis. In a case of par- xysmal ventricular tachycardia with complete block the entricle beating at 165 per minute and the auricle at 5, digitalis had repeatedly brought about a return f the normal sequential rhythm. To demonstrate hat complete block existed the patient was given some imple exercise and it was shown that the ventricle did ot increase its rate though the auricular rate became 00 per minute. It was characteristic of paroxysmal achycardia that rest and exertion were without effect n the rate. Dr. Eggleston and Dr. Cohn had men- ioned the time it required for the digitalis effect on the eart to wear off; in this case it required 18 days for he electrocardiogram to return to normal. Large doses f digitalis could produce ventricular tachycardia with omplete dissociation of auricle and ventricle as was hown by the electrocardiagrom. From the record one ould not be sure whether the pace-maker was dislo- ated to the auriculo-ventricular node and retrograde onduction or whether there were similar rates in both uricle and ventricle. There were one or two places here there was sequential rhythm for one beat and hen the return of the ventricular tachycardia. This ondition had been brought about in a man who had runk his tincture of digitalis, as he would whiskey, rom the bottle. On admission to the hospital the high ate had suggested the need of the electrocardiogram or the analysis of the mechanism and when the record ad been studied with the history all therapy had been iscontinued and, as the subsequent records demon- trated, all grades of block occurred in what might be alled retrogression until normal sequential rhythm of auricle and ventricle remained unaffected. The final records showed the complete disappearance of digitalis effect, when the T-wave had resumed in full its up- ward direction. Another slide illustrated the effect of Cheyne-Stokes respiration upon the ventricular rate of a heart which was being digitalized. It was shown that the hyperpnea phase of the periodic breathing slowed the ventricle very much, to 40 or 50, while during apnœa the rate became as high as 130-150. During the slow period the patient was in very great distress, sitting up and gasping for breath. During the period of rapid rate he was comfortable. To learn what effect the rate had upon the condition atropine was administered hypo- dermically and the rate promptly escaped from the vagus control remaining at 150-160 per minute. During the persistence of the high rate the patient was com- fortable and quiet though the periodic breathing per- sisted. Subsequently the records showed that the pa- tient was much more comfortable without the digitalis although the ventricular rate become considerably in- creased. Thus under the conditions it was better for the patient to be without digitalis though having fibrillation of the auricle. The main idea Dr. Halsey said he de- sired to emphasize was the importance of knowing by careful observation, the rate and rhythm of the ventricle from the beginning of digitalis therapy, in order to de- cide whether to increase, decrease, or discontinue the use of digitalis.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

BOARD OF MEDICAL EXAMINERS OF THE STATE OF NORTH CAROLINA.

Raleigh, June 20, 1921.

(*Continued from page* 396.)

CHEMISTRY, PHYSIOLOGY, AND HYGIENE.

1. Define: Inorganic, organic, acid, base, salt, efflor- escence, deliquescence, and catalytic action.

2. To what is temporary and permanent hardness of water due, and how may temporary hardness be re- moved? How is ethyl ether made and what are its properties?

3. What are the halogens, and what do they form when combined with other elements? What are alka- loids, and to what chemical group or groups do they belong? Name the liquid volatile ones.

4. Define enzymes, and give their general properties. What is a hormone and chalone? Are all proteins of equal value as food? Why?

5. What are the functions of the leucocytes? Are leucocytosis and leucopenia both always pathological?

6. What are vitamines, and where are they found?

7. Trace briefly the fifth cranial nerve from its deep origin to its final distribution, and give its general functions.

The following to be answered by those only who are taking final examinations.

8. Define the terms hygiene and sanitation. Name the common acute communicable diseases, and by what means each may be communicated.

9. Name the different sources of drinking water, and tell how each may be safeguarded. In estimating a city's water supply, what should be the minimum for each inhabitant per diem?

10. How may night-soil of small towns and rural communities be disposed of so as to be of little danger? What is a septic tank and what is the theory of its operation?

HISTOLOGY, PATHOLOGY, AND BACTERIOLOGY.

1. Discuss briefly the pathology and bacteriology of epidemic influenza.

2. Discuss wound healing.

3. Discuss the criteria of malignancy of tumors; (*a*) Name three malignant tumors giving sites. (*b*) Name three benign tumors giving sites.

4. Give an outline of the method of the Wassermann test for syphilis.

5. Given a laboratory culture of an organism growing on agar agar, how would you distinguish between typhoid, paratyphoid A, paratyphoid B, and *Bacillus coli*?

6. Describe the bacteriology of Vincent's Angina.

7. Discuss briefly the method of infection of: (*a*) Two diseases caused by protozoa. (*b*) Two diseases caused by filtrable virus.

8. Name diseases against which you would recommend prophylactic vaccination.

9. Name diseases against which you would recommend curative sera.

10. What is the difference between active and passive immunity?

ANSWERS.

CHEMISTRY, PHYSIOLOGY, AND HYGIENE

1. *Inorganic chemistry* is the chemistry of substances which do not contain carbon.

Organic chemistry is the chemistry of carbon and its compounds.

Acid is a compound of an electro-negative element or radical with hydrogen, part or all of which hydrogen it can part with in exchange for a metal or its equivalent without the formation of a base.

Base is a ternary compound capable of entering into double decomposition with an acid to form a salt and water.

Salt is a compound formed when a metal or its equivalent replaces part or all of the hydrogen of an acid.

Efflorescence is a property possessed by certain crystalline bodies, by virtue of which they lose their water of crystallization and fall to powder on exposure to the air.

Deliquescence is that property possessed by certain solids whereby they absorb moisture from the air, and eventually become liquid.

Catalytic action is that property possessed by certain bodies whereby by their mere presence certain chemical reactions are brought about or accelerated.

2. *Temporary hardness* of water is due to the presence of the bicarbonates of calcium or magnesium.

Permanent hardness is due to the presence of sulphates.

Temporary hardness may be removed by boiling the water.

Ethyl ether is made by the action of sulphuric acid upon ethyl alcohol, and the further action of ethyl alcohol on the sulphovinic acid which results from the first reaction:

$$C_2H_5OH + H_2SO_4 = H_2O + C_2H_5HSO_4$$
$$C_2H_5HSO_4 + C_2H_5OH = H_2SO_4 + (C_2H_5)_2O$$

Properties of ethyl alcohol. It is a colorless liquid, with a peculiar and tenacious odor; it is lighter than water; it is very volatile; it is very inflammable; its vapor forms an explosive mixture with air; it is a good solvent of fats, resins, alkaloids, etc.; mixes with water in all proportions; and it boils at 95° F.

3. *The halogens* are: Fluorine, chlorine, bromine, and iodine. When combined with (some) other elements they form salts; as calcium fluoride, sodium chloride, potassium bromide, potassium iodide.

Alkaloids are organic, nitrogenous substances, alkaline in reaction, and capable of combining with acids (to form salts) in the same way that ammonia does.

Alkaloids are generally regarded as secondary or tertiary amines.

The liquid, volatile alkaloids, are: Coniine, nicotine, sparteine.

4. *Enzymes* are bodies produced by living cells, and are capable of producing certain definite chemical changes in certain substances under certain well-defined conditions, and without themselves undergoing any alteration. Their chemical composition is unknown; not one of them has ever been isolated in an absolutely pure condition; it has been assumed that they are of a protein nature.

General properties of enzymes: They are generally soluble in water, or salt solutions, or in glycerin; they do not work in extreme temperatures, but require an "optimum" temperature approximating that of the body; they are precipitated by excess of alcohol; they require a suitable medium to work in; the products o their activity must be removed; they are capable o causing change in a large amount of material, whil they themselves remain unaltered; and each enzym will act on only one kind of substance.

Hormones, or "chemical messengers" are substance formed in one organ, and carried (probably by the bloo stream) to another organ to induce this latter organ t perform some function.

A *Chalone* is an inhibitory hormone.

All proteins have not an equal food value; this is o account of the difference in the number and characte of the different amino-acids of which the proteins ar composed.

5. *Functions of the Leucocytes:*—(1) to serve a a protection to the body from the incursions of pathogenic microorganisms; (2) they take some part in th process of the coagulation of the blood; (3) they aid in the absorption of fats and peptones from the intestine, and (4) they help to maintain the proper proteid content of the blood plasma.

Leucocytosis may be physiological as well as pathological.

Leucopenia is probably pathological.

6. *Vitamines* are accessory food substances which are necessary for the proper nutrition of the human body. They are known as Fat-soluble A; Water-soluble B; and anti-scorbutic vitamines.

The fat-soluble A is present in: Milk, butter, cream, cabbages, potatoes, beans, fat fish, and some meat.

The water-soluble B is present in: The husks of cereals, eggs, yeast, most vegetables, and some meat.

The anti-scorbutic vitamine, is present in: Fresh vegetables, fruit juices, raw meat juice, milk.

7. FIFTH CRANIAL NERVE. *Superficial origin.*—From the side of the pons Varolii. *Deep* (sensory root), from the medulla and upper part of cord; (motor root) from the floor of fourth ventricle and side of the aqueduct of Sylvius. *Exit:* The ophthalmic division, through the sphenoidal fissure; the superior maxillary division, through the foramen rotundum; the inferior maxillary division, through the foramen ovale. *Branches and Functions:—Ophthalmic branch* distributed to conjunctiva, skin of upper eyelid, cornea, skin of forehead, and nose, lacrymal gland. *Superior maxillary*, to skin and conjunctiva of lower eyelid, nose, cheek, upper lip, upper teeth, and palate. *Inferior maxillary*, to external auditory meatus, side of head, mucous membrane of mouth, anterior two-thirds of tongue, lower teeth, and skin of lower part of face. Also to muscles as indicated below. It supplies sensation to all the parts mentioned above; but, in addition, inferior maxillary supplies motion to the muscles of mastication, the mylohyoid, and anterior belly of the digastric.

8. *Hygiene* is the science and art of all that concerns the preservation, promotion, and improvement of health, and the prevention of disease.

Sanitation is that branch of hygiene which is concerned with the suppression or removal of the predisposing causes of disease; it is the practical side of a part of the subject of hygiene.

The common acute communicable diseases are:—Cerebrospinal meningitis (may be communicated by contact, droplet infection from sneezing or coughing, or carriers; the source of infection is in the nasopharyngeal discharges). Chickenpox (communicated by contact with patient or articles soiled by discharges from lesions). Diphtheria (conveyed by contact with discharges from case or carrier; also by fomites, and milk). German measles (communicated by direct contact with patient, or fresh oral or nasal secretions). Measles (communicated by direct contact with patient or oral or nasal secretions). Mumps (communicated by direct contact with case, or articles freshly soiled with secretions of mouth or nose). Poliomyelitis (communicated by direct contact with case or carrier, and articles soiled recently with virus in discharges from nose, throat, or bowels). Scarlet fever (communicated by direct contact with case or articles with infectious discharges from nose, throat, or ear: also by contaminated milk). Smallpox (communicated by personal contact, flies, and articles soiled with discharges). Whooping cough (communicated by direct contact with cases, or articles freshly soiled by discharges).—(From Stitt's *Practical Bacteriology, Etc.*)

9. The sources and varieties of water have been classified thus:

Wholesome.	1. Spring water...	very palatable.
	2. Deep-well water	
	3. Upland surface water	moderately palatable.
Suspicious.	4. Stored rain water	
	5. Surface water from cultivated land	palatable.
Dangerous.	6. River water, to which sewage gains access	
	7. Shallow-well water	

The first four may be used for drinking water, but will require filtration and disinfection.

The amount of water required is usually estimated at 17 gallons a day for each person.

10. *Disposal of night-soil of rural communities.* The first thing is to secure as good a privy as possible; it should be watertight, fly-proof, well ventilated and capable of being cleaned. Dry earth or sand should be thrown into the vault to absorb the liquid portion. The privy should be emptied regularly, and the contents buried in a field, not less than two feet deep, and with the use of a disinfectant such as chloride of lime.

A septic tank is a specially constructed tank for the treatment of sewage; in it the sewage as such is destroyed, and new substances are built up in its place. In *Cameron's septic tank* system "the sewage is first led into a tank from which air and light are excluded. Digestive changes take place in the sewage within this tank as the result of anaerobic bacterial action, which is favored by the darkness, the absence of air, and the perfect stillness at which the sewage is maintained. Under these circumstances much of the solid matter is rendered soluble and dissolved."—(Notter and Firth's *Hygiene.*)

HISTOLOGY, PATHOLOGY, AND BACTERIOLOGY.

1. INFLUENZA *Bacteriology.*—"The *Bacillus influenzæ*, discovered by Pfeiffer in 1892, is a very small rod-shaped organism (0.2 μ wide, 0.5 μ long), Gram-negative, and occurring singly, or in pairs or clumps. It is non-motile, and does not bear spores. It can be cultivated on blood-agar, on which it forms very minute colonies. It is found in the respiratory secretions, and less commonly in the lung, heart, central nervous system, etc., but very rarely in the blood. Contagion is conveyed by the moist secretions of the nasal and bronchial mucosa. The incubation period is from two to six days. One attack confers no immunity."

Pathology.—"The characteristic changes are—1. Inflammatory swelling of the nose and neighboring sinuses. 2. Hyperemia of the trachea and bronchi, the surface of which is covered with tenacious mucopus. 3. In fatal cases patches of bronchopneumonia. 4. When the central nervous system is involved, hyperemia of the meninges of brain and cord."—(Wheeler and Jack's *Handbook of Medicine.*)

2. Healing is an incised wound, if aseptic, and the edges are in apposition, occurs by *first intention.* "Exudation of plasma from the neighboring blood-vessels occurs, and its fibrinogen is converted into fibrin, so gluing the edges of the wound together. Leucocytes are poured out and infiltrate the wound, absorbing any blood clot present. These are followed by fibroblasts (connective-tissue cells), which take their place. New capillaries form by budding out from adjacent ones, and vascularize the new tissue. Fibrous tissue is formed by intercellular exudation from the fibroblasts and so the fibrocicatricial union is complete, for at the same time epithelium is spreading over the narrow surface line."

Healing by granulation or second intention occurs when the edges of the wound have not been brought together. "Exudation of plasma and leucocytes occurs, followed by fibroblasts and budding from the capillaries, thus forming granulation tissue. The dead tissues or sloughs are separated, and a red area of granulation is then exposed. The deeper layer of granulation tissue is converted into fibrocicatricial tissue, which contracts, and so the wound gradually lessens in size. In the meantime epithelium spreads in, from the edge over the surface, and so the scar is completed."—(*Aids to Surgery.*)

3. "*Benign tumors* are usually very slow in growth and distinctly localized, having a definite capsule. They rarely attain excessive size, but occasionally, owing to their intrinsically benign character, may attain huge dimensions without injury to the general economy. Generally they are movable (unless bound down by surrounding inflammatory tissue or primarily attached to bone). They do not metastasize or become disseminated throughout the body, and when completely removed do not recur. They exert no influence whatever upon the general economy when favoraby situated, but may endanger life by their size and situation when they interfere with the normal functions of any of the important organs of the body. They constitute the bulk of the tumors of youth, and need be removed only because of their size and location and because of the ever present danger of transformation into their correlated forms of malignant disease. *Microscopically* they can be distinguished by their non-infiltrating character, by their distinct encapsulation, by their tendency to conform to some definite type of normal adult tissue, and the absence of an actively growing edge with an abundance of cells showing karyokinetic figures.

"*Malignant tumors* exhibit diametrically opposite characteristics. They grow rapidly and usually diffusely. They are not encapsulated and may quickly attain considerable size, although huge malignant tumors are rather exceptional, since they usually prove fatal before they attain such proportions. They are intimately connected with the surrounding tissues and quickly become bound down and immovable. They metastasize and become disseminated rapidly through the lymph or vascular system, progressing steadily toward a fatal termination by the interference with vital functions caused by metastatic growths, or by an autointoxication which undermines the general health and produces the condition commonly known as cachexia. *Microscopically* they can be distinguished by the embryonal character of the cells constituting the growth and by their atypical structure, conforming to no definite adult normal tissue. They can be seen to be rapid in their growth by the abundance of cells undergoing indirect cell division. They are not encapsulated, but tend to invade surrounding structures, blood and lymph channels, a circumstance which explains their ready metastasis."—(Rodman's *Diseases of the Breast.*)

Three malignant tumors.—(1) Carcinoma; occurring in breast, stomach, rectum, ovary, testicle. (2) Sarcoma, occurring in bone, lymphatics, breast, testicle, ovary, skin. (3) Epithelioma; occurring in nose, lip, palate, tongue, larynx, penis, stomach, gall-bladder.

Three benign tumors.—(1) Adenoma; occurring in breast, ovary, testicle, thyroid, parotid, rectum. (2) Chondroma; occurring in bones, salivary glands, testicle. (3) Glioma; occurring in brain, retina, spinal cord, optic nerve.

4. *Wassermann reaction.*—"In this test a watery extract of syphilitic fetal liver is used as the antigen to fix the syphilitic immune body present in the serum, and the hemolytic system is arranged as follows:

"The serum from the patient previously inactivated by heating (therefore only containing immune body), mixed with liver-extract and a small quantity of fresh serum (to provide the complement), is incubated at 37° C. for one hour; to it are then added sensitized red cells (that is to say, red cells mixed with their appropriate but inactivated, hemolytic serum) and the mixture is again incubated for two hours at 37° C., removed to an ice chest, and allowed to stand for twelve to eighteen hours before examination. A similar hemolytic system is put up at the same time to act as a control, in which the suspected serum is replaced by that from a normal individual. If syphilitic antibodies are present in the suspected serum, no hemolysis will take place, as the complement required by the sensitized red cells for this reaction to occur will have been already utilized and bound by the syphilitic immune body to the lipoid of the liver extract. This constitutes a positive reaction. In the absence of immune body from the suspected serum, however, complete hemolysis will take place and a negative reaction is recorded."—(Bosanquet and Eyre's *Serums, Vaccines and Toxines.*)

5.

B. COLI.	PARATYPHOIDS.	B. TYPHOSUS.
Motility is not pronounced in most cultures; often only a few individuals in the field show independent movement; few flagella. Dextrose and lactose are fermented with gas production, some varieties fermenting saccharose also. Milk is curdled, usually within forty-eight hours, at 37°, with abundant acid production. Luxuriant growth on potato, usually with a brown tinge. Indol is produced by most varieties in large amount. Under most conditions not pathogenic for man or the lower animals. When injected intraperitoneally into rabbits and guinea-pigs a fatal result usually ensues, but considerable variation in virulence is shown by different strains.	Actively motile; 10 to 14 flagella. Dextrose is fermented with gas production, but no gas or acid is formed from lactose. Milk is never curdled; on prolonged cultivation under aerobic conditions the milk acquires a slight primary acidity, then becomes strongly alkaline, and finally the casein is dissolved. Indol is produced not at all or very scantily. Distinctly pathogenic for many of the lower animals and for man.	The typhoid bacillus is actively motile and possesses 10 to 14 flagella. B. dysenteriæ, otherwise closely related, is slightly motile or devoid of motility, according to some observers. Dextrose is fermented with production of acid, but gas is never produced; no acid is produced from lactose. Milk is never curdled, although a slight initial acidity develops, followed by a return to the original reaction; an alkaline reaction is produced in milk by some strains, but not to such an extent as in the preceding group. No indol is formed under ordinary conditions of cultivation. Pathogenic for man, less so for the lower animals.

—(From Jordan's *Bacteriology*.)

6. *Bacteriology of Vincent's Angina.*—"In smears from the lesions there has been demonstrated a spindle-shaped or fusiform bacillus, together with which there is usually found a spirillum not unlike the spirillum of relapsing fever. The two microorganisms are almost always found together in this form of disease and were regarded by the first observers as representing two distinct forms dwelling in symbiosis. More recently identity has been claimed for the two forms, it being believed that they represent different developmental stages of the same organism.

"The fusiform bacilli are from 3 to 10 micra in length and have a thickness at the center varying from 0.5 to 0.8 micron. From the center they taper gradually toward the ends, ending in blunt or sharp points. The length of these bacilli may vary greatly within one and the same smear preparation. They are usually straight, sometimes slightly curved. They do not stain very easily with the weaker anilin dyes, but are readily stained by Loeffler's methylene-blue, carbolfuchsin, or better, by Giemsa's stain. Stained by Gram, they are usually decolorized, though in this respect the writers have found them to vary. Stained preparations show a characteristic inequality in the intensity of the stain, the bacilli being more deeply stained near the end, and showing a banded or striped alternation of stained and unstained areas in the central body. The bacilli are not motile.

"The *spirilla* found in Vincent's angina are usually somewhat longer than the fusiform bacilli, and are made up of a variable number of undulations, shallow and irregular in their curvatures, unlike the more regularly steep waves of Spirocheta pallida. They are stained with even more difficulty than are the bacilli and usually appear less distinct in the preparations. The stain, however, is taken without irregularity, showing none of the apparent metachromatism observed in the bacilli.

"The microorganisms of Vincent's angina, when occurring in the throat, are rarely present alone, being usually accompanied by other microorganisms, such as staphylococci, streptococci, and not infrequently diphtheria bacilli."—(From Hiss and Zinsser's *Bacteriology*.)

7. TWO DISEASES CAUSED BY PROTOZOA.—(1) *Malaria*, transmitted by the bite of an infected Anopheles mosquito. (2) *Amebic dysentery*, transmitted by eating contaminated foods, drinking contaminated water, by flies, and by direct contact with infected material.

TWO DISEASES CAUSED BY FILTRABLE VIRUSES.—(1) *Acute anterior poliomyelitis*, transmitted by contact with an infected person or carrier, or by contact with articles freshly soiled by discharges from nose, throat or bowel of infected persons or carriers. (2) *Foot and mouth disease*, transmitted by direct contact with man or animals infected.

8. *Diseases against which prophylactic vaccination is recommended.*—Smallpox and typhoid fever.

9. *Diseases against which curative sera are recommended.*—Diphtheria, tetanus, cerebrospinal meningitis, lobar pneumonia, bacillary dysentery, plague.

10. *Active immunity* is due to the direct participation of the organism concerned and depends upon increased cell activity. Such immunity is gained at the expense and often at the risk of the organism acquiring it. Immunity to smallpox may be obtained either by an attack of the disease due to natural exposure or by deliberate inoculation by vaccination with cowpox virus. This immunity depends upon a specific reaction on the part of the cells and tissues of the individual organism.

Passive immunity, on the other hand, involves no active generation of protective substances by the immunized animal. The latter is simply the recipient of substances formed in the body of another animal and transferred to the individual to be protected. When a child has been exposed to diphtheria it is the custom to inject about 1,000 units of diphtheria antitoxin into the body of the child for protective purposes. The child is then measurably assured against an attack of diphtheria, and is said to have been immunized passively, since its own tissues have in no way shared in the manufacture of the protective substance. Passive immunity may be quickly acquired, but is also much less permanent than active immunity, and tends quickly to disappear.—(Jordan's *Bacteriology*.)

(*To be continued.*)

Books Received.

The* MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.

CLINICAL ELECTROCARDIOGRAPHY. By Dr. FREDERICK A. WILLIUS. 188 pages with illustrations. Price, $5.00 net. Published by W. B. Saunders & Company, Philadelphia, Pa.

GRUNDRISS DER KLINISCHEN THERAPIE INNERER KRANKHEITEN. By Dr. GEORG KLEMPERER. 237 pages without illustrations. Price, 108 Marks. Published by Urban & Schwarzenberg.

DISEASES OF THE SKIN AND THE ERUPTIVE FEVERS. By Dr. JAY FRANK SCHAMBERG. Fourth Edition, Thoroughly Revised. 626 pages with illustrations. Price, Cloth, $5.00 net. Published by W. B. Saunders & Company, Philadelphia, Pa.

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MODERNE BIOLOGIE. By HANS MUCH. 66 pages. Published by Curt Kabitzsch, Leipzig, Germany.

Medical History.

NEW BOOKS AND OLD.

XXV—OSLER'S EVOLUTION OF MODERN MEDICINE.

By JOHN RUHRÄH, M.D.,

BALTIMORE, MD.

WITH remarkable perspicacity the authorities of Yale College chose for Silliman lecturer in 1913, Sir William Osler. After the lectures were delivered they were set in type and the correction of the galley proofs was underway when the war broke out, so that nothing more was done by the author himself. Later on the proofs were revised and corrected by Garrison, Cushing, Streeter and Leonard Mackall. Of this "Aëroplane flight over the progress of medicine through the ages," as Osler himself called it, which has recently been issued by the Yale University Press, under the able guidance of Garrison, the author of the preface says:

> This work, composed originally for a lay audience and for popular consumption, will be to the aspiring medical student and the hard working practitioner a lift into the blue, an inspiring vista or "Pisgahsight" of the evolution of medicine, a realization of what devotion, perseverance, valor and ability on the part of physicians have contributed to this progress, and of the creditable part which our profession has played in the general development of science. The editors have no hesitation in presenting these lectures to the profession and to the reading public as one of the most characteristic productions of the best-balanced, best equipped, most sagacious and most lovable of all modern physicians.

There are 107 well chosen illustrations which add much to the attractiveness of the volume which has been divided into six chapters bearing the headings: Introduction; Greek Medicine; Medieval Medicine; The Renaissance and the Rise of Anatomy and Physiology; The Rise and Development of Modern Medicine, and The Rise of Preventive Medicine.

The book is written in the delightful Oslerian manner, the style of a master of English and of his subject, free from pedantry though full of classical allusions. His phrases are often wonderful, as for example: "Civilization is but the filmy fringe on the history of man."

Some idea of the scope of the lectures may also be gleaned by noting that Osler mentions considerably over four hundred names. Quickly the reader is carried along from the beginnings of medicine, through the beliefs and practices of the Egyptians, the Assyrians and Babylonians, the Jews, the Chinese and Japanese, until the bright light of Greece breaks in upon the story. Osler was a lover of Greece and its culture and knew it intimately. With Lucretius he sings that wonderful pæan:

> "Out of the night, out of the blinding night
> Thy beacon flashes;—hail, beloved light
> Of Greece and Grecian; hail, for in the mirk
> Thou dost reveal each valley and each height.
>
> Thou art my leader, and the footprints thine,
> Wherein I plant my own. . . .
>
> * * * * * * * *
>
> The world was thine to read, and having read,
> Before thy children's eyes thou didst outspread
> The fruitful page of knowledge, all the wealth
> Of wisdom, all her plenty for their bread."

He goes on:

> "Let us come out of the murky night of the East, heavy with phantoms, into the bright daylight of the West, into the company of men whose thoughts made our thoughts, and whose ways made our ways—the men who first dared to look on nature with the clear eyes of the mind."

The value of the Greek was that he lifted the veil of nature, unlike the Egyptian who on one of the temples of Isis carved "I am whatever has been, is, or ever will be, and my veil no man has yet lifted," the man of the Aegean Sea looked nature full in the face and wrested not a few of her secrets from her. Osler gives a charming account of the Greek and his medical gods, his temples of healing, of Hippocrates and the other masters. The humanity, the directness of thought of the Greek, his common sense appealed strongly to Osler who embodied so much of their spirit.

An account of the Alexandrian School and its philosophers, and we are brought to the feet of Galen who receives full praise from the lecturer who said:

> "No other physician has ever occupied the commanding position of Clarissimus Galen. For fifteen centuries he dominated medical thought as powerfuly as did Aristotle in the schools. Not until the Renaissance did daring spirit begin to question the infallibility of this medical pope. But here we must part with the last and, in many ways, the greatest of the Greeks—a man very much of our own type, who, could he visit this country today, might teach us many lessons. He would smile in scorn at the water supply of many of our cities, thinking of the magnificent aqueducts of Rome and of many of the colonial towns—some still in use—which in lightness of structure and in durability testify to the astonishing skill of their engineers. There are country districts in which he would find imperfect drainage and could tell of the wonderful system by which Rome was kept sweet and clean. Nothing would delight him more than a visit to Panama to see what the organization of knowledge has been able to accomplish. Everywhere he could tour the country as a sanitary expert, preaching the gospel of good water supply and good drainage, two of the great elements in civilization, in which in many places we have not yet reached the Roman standard."

What a striking introduction he gives us to medieval medicine!

> "There are waste places of the earth which fill one with terror—not simply because they are waste; one has not such feelings in the desert nor in the vast solitude of the ocean. Very different is it where the desolation has overtaken a brilliant and flourishing product of man's head and hand. To know that
>
> . . . The Lion and the Lizard keep
> The Courts where Jamshyd gloried and drank deep
>
> sends a chill to the heart, and one trembles with a sense of human instability. With this feeling we enter the Middle Ages."

In a few words Osler sets before us the state of mind of the period with its Jerome and his remark: "Does your skin roughen without baths? Who is once washed in the blood of Christ needs not wash again." The lecturer goes on to say "In this unfavorable medium for growth, science was simply disregarded, not in any hostile spirit, but as unnecessary." This gives the lecturer a setting for his account of the south Italian school, Byzantine and Arabian medicine, the last of which he gives in some detail. Then follows the story of the rise of men and the Universities; Mundinus and Bologna; Arnold of Villanova and Montpellier; Peter of Albano and Padua; Albertus Magnus; Guy de Chau-

liac; Roger Bacon and others and an account of the medieval medical study and practice, as well as astrology and divination which had such a hold on the mind of man in the middle ages.

"Wonderful tales had our fathers of old—
Wonderful tales of the herbs and the stars—
The Sun was Lord of the marigold,
Basil and Rocket belonged to Mars."

The page portraits of Linacre, John Caius, Conrad Gesner and Paracelsus, tell us that we are entering the Renaissance. It takes great skill to condense the work and lives of these worthies together with Copernicus, Vesalius, Harvey and the other contemporary workers. He speaks of Boyle but neglects John Mayow—to my mind one of the greatest scientific men of his age. Quickly, but with a discerning, discriminating touch, he comments on Morgagni, Sydenham, Boerhaave, Lancisi, Baglivi, Cullen, Rush, John Brown, John Hunter, Jenner, Auenbrugger, Laennec, and brings us almost suddenly down to Pasteur, Koch and Lister. Thus we arrive at the present time and the last chapter as remarked above is entitled "The Rise of Preventive Medicine." Osler knew full well that the present endeavors of the public health workers are but feeble groping in the dark. The day will come when someone will write the history of the *development* of preventive medicine. It should be a glorious chapter when the collective mind of man has dealt successfully with the problems of eliminating the feebleminded, the physically unfit, endocrine disturbances, neoplasms and infections. The present practitioners of physic, however, need have no fear of losing their present clientèle through the dawn of this medical millennium.

The last chapter contains a quotation from Hippocrates which I cannot refrain from quoting together with the first lines of comment:

"'But on that account, I say, we ought not to reject the ancient Art, as if it were not, and had not been properly founded, because it did not attain accuracy in all things, but rather, since it is capable of reaching to the greatest exactitude by reasoning, to receive it and admire its discoveries, made from a state of great ignorance, and as having been well and properly made, and not from chance.'"

"I have tried to tell you what the best of these men in successive ages knew, to show you their point of outlook on the things that interest us. To understand the old writers one must see as they saw, feel as they felt, believe as they believed—and this is hard, indeed impossible! We may get near them by asking the Spirit of the Age in which they lived to enter in and dwell with us, but it does not always come. Literary critidism is not literary history—we have no use here for the former, but to analyze his writings is to get as far as we can behind the doors of a man's mind, to know and appraise his knowledge, not from our standpoint, but from that of his contemporaries, his predecessors and his immediate successors. Each generation has its own problems to face, looks at truth from a special focus and does not see quite the same outlines as any other."

Osler understood the true value of medical history. He had profited himself from his intimate knowledge of the past so that he had no hesitation in recommending the study of other days to his students and contemporaries:

"It is one of the values of lectures on the history of medicine to keep alive the good influences of great men even after their positive teaching is antiquated. Let no man be so foolish as to think that he has exhausted any subject for his generation. Virchow was not happy when he saw the young men pour into the old bottle of cellular pathology the new wine of bacteriology. Lister could never understand how *aseptic* surgery arose out of his work. Ehrlich would not recognize his epoch-making views on immunity when this generation has finished with them. I believe it was Hegel who said that progress is a series of negations—the denial to-day of what was accepted yesterday, the contradiction by each generation of some part at least of the philosophy of the last; but all is not lost, the germ plasm remains, a nucleus of truth to be fertilized by men often ignorant even of the body from which it has come. Knowledge evolves, but in such a way that its possessors are never in sure possession. 'It is because science is sure of nothing that it is always advancing.' (Duclaux.")

One marvels as one reads these lectures. They were intended for laymen and to such they will be enlightening; to medical students they will come as a well nigh perfect introduction to the history of medicine; to the student of the past to whom the facts presented are not new the lectures will prove the most interesting, because such students are the only ones who can appreciate the wonderful judgment, the discriminating niceness with which Osler has balanced his presentation of the story of the evolution of medicine.

History of the Surgical Treatment of Pulmonary Tuberculosis.—When we consider the universality and nature of pulmonary tuberculosis, the number of classical writers on this subject may be regarded as very small. Pallasse, writing in *Le Progrès Médical*, xlix, 26, can recall only Sydenham, Baglivi, Van Swieten, Lieutaud, Morton, and Bennett, the two latter alone having produced monographs. The author naturally does not come down to the level of the XIX Century. He suggests that while the above writers are known today, there may be others who have been overlooked entirely. Leaving out of count a number of the older authors and writings on phthisis which contain nothing of importance, the author has sought to trace some writer of merit who has been genuinely ignored by his successors. The one he thinks he has found in Jeannet de Lorraine who flourished late in the XVIII Century. This man is mentioned by many writers. He made but one contribution to literature, a work of 200 pages entitled "De la pulmonie," etc., which appeared in 1781. Evidently his attention was drawn to the affection because of his own state of health which threatened him with consumption. We find nothing striking until the chapter on treatment for the author adheres quite faithfully to Bennett, Morton and others. Neither predecessors nor contemporaries had spoken of a surgical treatment. The first physician known to have recognized systematically the possibility of surgical treatment is Gilchrist in his book on the utility of sea-voyages, published in 1770. He seems to have proposed a sort of empyema operation for isolated foci of tuberculosis *in the* lung. The merit of Longrois in the eyes of the author seems to have been that he gave a *sectional* to the surgical treatment of this disease in which he cites cases taken from literature. He was unaware apparently of Gilchrist's suggestions along this line. Two years later he was followed by Baumès in giving a chapter on the *surgical treatment*. Both report cases seen originally by *Baglivi* and Blegny.

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Original Articles.

THE STEPFATHER.

A MEDICAL COMEDY, WITH A PSYCHOANALYTIC TREND, IN ONE ACT AND FOUR SCENES.

BY CHARLES L. DANA, M.D.,

NEW YORK.

CHARACTERS

DR. BLEUER, a neurologist.
MISS JEANETTE DAILEY, a patient.
MISS GLADYS DAILEY, her sister.
DOORMAN.
PATIENTS.
By telephone: MR. CURTIS, the stepfather; ALGERNON CURTIS, the brother.
In consultation: DR. YOUNG, a psychoanalyst.

SCENE I.

Doctor's Office.

The office contains various important looking apparatus; many books, files and journals, and instruments of precision.

The Doctor sits at a desk near the window. The desk is covered with books and notes. Miss Jeanette Dailey sits before him in the patients' chair—a pleasant faced young woman of 22. Miss Gladys, her sister, also attractive, sits in a chair to the left.

Miss Gladys.—Well, Doctor, we've come to see you.

Dr. B.—Yes, young ladies; what is the story?

Gladys.—Well, Doctor, you see my sister here has epileptic fits, and we thought that you could help her. (Miss Jeanette, the patient, smiles deprecatingly.)

Dr. B. (to Jeanette).—How long have you had them?

Miss Jeanette.—Since I was fourteen. They are pretty hard, too.

Gladys.—She had a fit last night, and she broke three teeth — nearly. (Miss Jeanette shows her teeth.)

Jeanette (with emphasis).—Yes, I've loosened nearly all of them.

Dr. B.—Your teeth look very well—I do not find them loosened. Perhaps you are too apprehensive. Do you have these spells very often?

Jeanette.—About twice a month or so; but you see I never can tell.

Dr. B.—And you are getting no better?

Jeanette.—I think not; they are just as bad. I don't dare to go out alone.

Dr. B.—And have you not had treatment all these eight years?

Jeanette.—Well, I guess not much. We had a homeopathic doctor once, but I hadn't much faith in his medicine.

Gladys (nervously)—Doctor, do you think distress of mind could make them worse?

Dr. B.—Probably. Distress of mind is distinctly unhealthy.

Gladys.—Because, you see, Mother's married again, and we don't like *him.* And he has two children.

Jeanette (sharply).—They are horrid, common things.

Gladys (with intensity of feeling).—And he is just a low down Dutchman. And Mother's mad because we won't speak to him.

Dr. B.—But this stepfather, isn't he a nice man?

Gladys.—No, indeed; he's a policeman. He lived opposite us for years and we always hated him. I am sure Mother must be crazy. She thinks he is all right.

Dr. B.—But she supports you and cares for you?

Gladys.—Oh, no; Mother doesn't care for us. She doesn't love us any more. I live with her, but when I am twenty-one, I guess I will have to leave the house.

Dr. B.—But hasn't your Mother paid any attention to this sickness of yours, and tried to get you well?

Jeanette.—Well, I should think, not much. I haven't seen any doctors specially. I think she didn't want to spend any money.

(Knock at the door.)

Dr. B.—Come in.

(Colored doorman puts in his head.)

Doorman.—Mr. Ragadski says he is very nervous; he wants to know if he must wait very much longer?

Dr. B.—Tell him to have patience and read this: I will see him soon. (Hands copy of Osler's "Aequanimitas.") And just tell him patients often do better in the waiting room than in the office. (Turning to Jeanette.) So your mother just lets things go? Didn't she send you here today?

Gladys.—Oh, no! Mother doesn't know we are here. You mustn't write her or let her know, either. She wouldn't want us to spend the money.

Dr. B.—Has she money?—not that I want it—

Gladys.—Oh, yes! I guess she's money. We do the housework and she gives us an allowance.

Jeanette.—And I do some embroidery and sell it at the Women's Exchange. I brought some down today.

Dr. B.—Yours is not a happy family?

Gladys (emphatically).—I guess not; we don't even speak at table. It is dreadful.

Dr. B.—And worse, it's unsanitary. You ought always to talk when you eat. But have you tried to be amiable and kind to these new people?

Gladys.—We tried at first. We spoke to these children when they didn't behave and told them

how they ought to act; but Mother glared at us and didn't like it. Now we won't speak to them. They are just common, low, contemptible things. You should see them eat at table!

Dr. B.—I should love to, I am sure. But haven't you any relatives?

Gladys.—Oh, yes; we have three brothers. Two of them left the house when *he* came. One of them is engaged, but we didn't go to his engagement party, and we aren't going to his wedding, either. We don't like his girl.

Dr. B.—Young ladies, your family life has complications. I think truly, Miss Jeanette is made worse by distress of mind, and I can't do her much good until there is a better feeling in the Dailey family. Aren't you told to love your neighbors?

(Both giggle.)

Jeanette.—Gladys does!

Gladys.—Now, Jeanette!

(Jeanette turns pale. Her eyes roll, then become fixed; she gasps.)

Gladys.—She's got it! (Jumps up; seizes her sister and steadies her.)

(The Doctor gets some salts and holds the bottle to Jeanette's face. Jeanette flushes and recovers herself. The Doctor makes some examinations—writes a prescription and a note and hands them to Jeanette.)

Dr. B.—Be sure and take this medicine as directed. Go to this address next Monday morning and do exactly as the doctor there directs you; answer all his questions. As your life isn't happy in waking hours, cultivate the habit of having happy dreams; be pleasant to your stepfather. Come back a week from today.

(Enter Mr. Ragadski, Mrs. Ragadski (with a shawl over her head), and Mr. Ragadski's brother-in-law.)

Mr. R.—Are you a professor for the nerves?

Dr. B.—I suppose so—some people say not. Please sit down and we will see.

Scene II.

Same scene; a week later. Much later in the morning. Enter same young women.

Dr. B.—Good morning; be seated, please. I'm sorry you had to wait. I suppose you were a little puzzled by the things Dr. Young made you do yesterday.

Gladys.—Yes, I just thought it foolish; only we don't care as long as Jeanette gets better. He took a lot of time.

Jeanette.—And such awful questions! He isn't going to hypnotize me, is he? Doctor—where is my complex (feeling about her stomach).

Dr. B.—Oh, not there, anyway; we will talk about it later. Have you been well, Miss Jeanette?

Jeanette.—Yes, Doctor, very well. We told Mother we had been here.

Dr. B.—Did she seem pleased, or was she at all interested?

Gladys.—I guess she was interested, Doctor—she gave us back the money we paid. She says we can come again.

Dr. B.—So you have been talking to your mother?

Gladys.—Yes, Doctor, we've been talking to her some, not too much; she will pick a fight if we do. We go out every evening so as not to talk to her much.

Dr. B.—Out every evening, and in Mt. Vernon? It must have large social resources?

Gladys.—Yes, Doctor, we have to go; at first we used to stay upstairs, but Mother said we'd have to come down, or she would make us pay the gas bills.

Dr. B.—But where can you go every evening?

Gladys.—Oh, picture shows.

Jeanette.—Then Gladys has a friend, a young gentleman. She visits his family. (Giggles.)

Gladys (snappishly).—You needn't say anything about that! You've got a friend, too.

Jeanette (looking serious).—Well, but he's different. I don't visit his home yet. I told Dr. Young about that.

Dr. B.—Never mind these young men now. There seems to me a great deal of unnecessary friction among the Daileys. Perhaps you girls aren't trying to be as nice as you ought.

Gladys.—Oh, yes, we've tried—but you should see stepfather!

Dr. B.—You have one brother who lives with you?

Gladys.—Yes.

Dr. B.—And he doesn't quite sympathize with your point of view?

Gladys.—Well, not exactly; but he treats us girls real mean. He's called me terrible names, and we won't speak to him. He's going to get married, and he wants us to go to the wedding, but we won't do it.

Jeanette.—He used to be a good brother, but now he's different. He's a chauffeur.

(Telephone rings.)

Dr. B.—Yes, yes, this is Dr. B. You are in Mt. Vernon, Mr. Curtis? What! the two Dairy sisters? Yes, Jeanette is all right. Tell your wife they just had to wait. Well, stepfather seems anxious about you.

Gladys.—Well, I think he's just got to. That's it.

Dr. B.—You think your brother is not so bad, Miss Jeanette? Don't you speak to him?

Jeanette.—Well, sometimes, but Gladys won't.

(Gladys looks very firm.)

Gladys.—It never would do to give in to him.

Dr. B.—He's engaged? Is she a nice girl?

Gladys.—His girl? No, she isn't! She's all airish and nothing back of it. I mean, you know, she lives up on the Hill and is very swell, but when her father died, there wasn't any money. She works daytimes in a dentist's office, passing tools, and water—and things.

Dr. B.—And stepfather, isn't he after all an amiable man?

Gladys.—Perhaps he's amiable, but you should just see him at the table—and the kids! It's awful—you couldn't eat.

Dr. B.—Perhaps not—still, I should like to go up and lunch with you some time. I want to see the inside of this happy home.

(Shriek of protest.)

Jeanette.—Oh, no—you couldn't do it!

Dr. B.—And see mother and the kids—

Gladys.—It wouldn't be possible.

Dr. B.—Well, I'm not so sure. I want to see your epfather also. You eat with him, do you not?

Jeanette.—Yes, now we do. We used to go into e kitchen and eat by ourselves, but Mother ouldn't let us continue.

Gladys.—She took the dishes away.

Dr. B.—Mother plainly wants you to get acainted with stepfather. Upstairs, no gas; in the tchen, no food; everywhere else, stepfather and ie kids. But there are other homes. You have vo other brothers, Jeanette; can't they take you and care for you?

Jeanette.—Oh, yes; they would like to help, but iey are just starting and they haven't any money.

Gladys.—And Joe has only got one kidney; and esides, they are both out in California.

Dr. B.—That does make it difficult just now!

Jeanette.—We had one lucky brother. He knew nough to get typhoid fever a year ago and he died f it. He was a good one.

(Jeanette weakens a little. She brings out her andkerchief. Gladys looks anxious and reaches or the salts.)

Dr. B.—Perhaps some other girl's brother who ves nearer than California might help?

(The girls look at each other consciously.)

Gladys.—No, it's no use—not now. Sometimes I ream it's different.

Jeanette.—And I, too.

Dr. B.—Did you tell about the dreams to Dr. Young?

Jeanette.—Yes, I wrote out one for him. It was unny. I was riding on a red horse into a lot of vater.

(Telephone rings.)

Dr. B.—Yes, this is the doctor. You are Algerion? What, Algernon Dailey? And you will have your car here for your sister, if Jeanette is ill? Well, she is not. She is all right. Good-bye.

Dr. B.—Well, Miss Jeanette, please straighten up and notice this placard here: "It's against the rule to have fits in my office." Take this little schedule I have written out, follow it; don't forget Dr. Young. And do you perhaps remember the Fifth Commandment? It contains a very old-fashioned suggestion—

Jeanette.—"Honor thy father and mother"—

Dr. B.—Yes.

Gladys.—But there is nothing said about honoring that policeman—

Dr. B.—Well! That's only going a (apologetically) step farther! Good day. Come in another week.

SCENE III.

Same Scene. A Week Later.

Dr. B.—Good day, again. I hope you have had no attacks.

Jeanette.—No, I am all right. Say, Doctor, I dreamed of you last night (much pleased), and I saw you up at our house talking to Mother.

Dr. B.—You dreamed then of my unfulfilled wish. Did I carry a cane or did you notice the snake in my scarfpin?

Jeanette.—I don't remember that; but Mother was real pleased and you gave the kids ten cents.

Dr. B.—I do such things in dreams. But have you broken the silence and been talking to your relatives?

Gladys.—Yes; but brother had to speak first. It was Christmas time and he did a real mean trick, anyway. He just came and laid a package of candy on the table and says: "I suppose we might as well be pleasant Christmas time."

Dr. B.—And were you both pleasant?

Gladys.—Oh, yes; we've been very sweet. Brother's a great talker, anyway.

Dr. B.—And stepfather; you spoke to him?

Gladys.—Yes, but he didn't talk very much. He's afraid.

Dr. B.—I thought policemen had to be courageous?

Gladys.—Well, we won't let him talk much, anyway. Besides, he's resigned.

Dr. B.—Are you getting ready for the wedding?

Gladys.—No, indeed; we are not going to the wedding. That's the trouble. They want us. You see, it will show Mother up if everyone sees we are not there.

Jeanette.—Mother doesn't like it because Gladys can't get married for two or three years. She don't want to support her so long—and stepfather, too.

Gladys.—I've been thinking of leaving and going back to my stenography.

Jeanette.—And I would do embroidery.

Gladys.—There's a clerk in Jones's store who would say something to Jeanette—only for the policeman. He don't like him.

Dr. B.—You are not a loving couple, and it seems due mostly to the fact that your mother has married again and married beneath her.

Gladys.—Yes; why didn't he marry that waitress? He was engaged to her and he'd have done it, only Mother hooked him. People ought to marry in their own class. Father was a nice man.

Dr. B.—An honest plumber?

Gladys.—Yes.

Dr. B.—Well, the thing has happened and the situation is not so dreadful as to cause so much distress of mind as you seem to suffer. I have a letter here from your brother. (Girls sit up.) May I read it to you?

"DEAR DOCTOR:

"Jeanette and Gladys are all right, but they have had some hard times and they get excited sometimes. They say they are not going to my wedding, and I don't think they had better. I wouldn't want anything to happen to Jeanette. Please let me know what they should do. They are pretty terrible when they get excited. Now they are excited over me. I want them to my wedding, of course; but if you say it would be bad for Jeanette, it will be all right. Please let me know about this and what you think of her? Yours truly,

"A. DAILEY."

Jeanette.—Do you mean you're going to say I can't go to the wedding?

Dr. B.—You can't go to an exciting ceremony unless I am sure you can take care of yourself. And Gladys should not go alone.

Jeanette.—But we want to go!

Dr. B.—Listen! You came to me with a story of Jeanette having "fits." I examined her and sent her to Dr. Young, who asked her strange questions, gave her tests of words, made her talk and talk and tell her whole history, and even her dreams.

Dr. Young and I have conferred about her—about both of you, in fact; because Gladys also has fits—

Gladys.—I don't! Never in my life!

Dr. B.—Has fits—of violent temper—(Gladys looks quieter), which are as serious as Jeanette's; for Jeanette has no real fits at all, only what shall I say—"Complexes"—carry that word to Mt. Vernon. You are both in love, and in love badly (girls look very conscious), but your love affairs are blocked — suppressed — buried alive, but still living—while the unconscious longings and burnings—

Gladys.—We haven't any.

Dr. B.—Wait, please — Show themselves in explosions of unreasonable and spiteful conduct toward stepfather. The mental conflict with the buried complex of your loves turns stepfather into an obsession—your single ruling idea. You make him the starting point and source of all your woes and annoyances. Resenting him, you are undutiful to your mother, unkind to the children, silly and disagreeable to your brother. You, Jeanette, frame up an imitation fit, and Gladys breaks out in genuine storms of unpleasantness, and all due not to stepfather at all; but to those young men, James and Timothy, whom you love and do not possess. Through this, two naturally sweet and affectionate girls are made the most soured and unreasonable and disagreeable females that commute above the Bronx. Now you know the reasons: Think them over. And you, Jeanette, if you understand and believe, and will cease your conflicts, your fits will be over. If you need a little more help, go to Dr. Young and let him finish my task. I have given you the cure. Take it, and good-bye.

(Patients retire. Dr. B. aside: Well, I wonder if there is anything in those hectic remarks?

SCENE IV.

Same place a month later, Doctor at telephone; doorman waiting.

Dr. B.—Hello! Is this 20 Mt. Vernon? Is this Mrs. Curtis? This is Dr. Bleuer. How are the girls—the girls, Jeanette and Gladys? I haven't heard a word from them or about them since they left here a month ago. Yes, how are they? What?

Voice.—Just the same.

CURTAIN.

HEADACHE AND CHRONIC MASTOIDITIS.*

BY WILLIAM LEDLIE CULBERT, M.D.,

NEW YORK.

AURAL headache, although occurring less often than optic or nasopharyngeal headache, is of sufficient frequency to make a general knowledge of it important, especially as certain types of aural headache are very difficult of diagnosis.

Headache consequent on involvement of the ear is of two kinds: organic and functional. A brief résumé of an article by Loughran[1] shows that organic pain in the head, when referred to the ear, is produced as the result of an "inflammatory process present in the mucous membrane or bony structures of the various divisions that go to make up the organ of hearing, or in structures that may be involved by extension from these parts. Pain in a nerve associated with an inflamed mucous membrane is produced by pressure on its terminal filaments or by external pressure against the congested mucous membrane, as in any cavity filled with fluid under tension with no means of escape. Pain from internal pressure is present in those forms of acute disease of the middle ear where the lesion is one of acute congestion without exudation of the mucous membrane within the Eustachian tube and middle ear cavity."

Functional headache may occur from toxemic absorption from any acute or chronic suppurative process in the middle ear, mastoid, or internal ear; in other words, from focal infection. The mechanism of headache resulting from such absorption phenomena is explained by Dr. Foster Kennedy by the fact that the toxins probably travel along the neurolymph channels accompanying the nerve to the cranial ganglia, particularly the fifth, which supplies the dura. Another type of functional headache is produced reflexly from irritations of the auditory canal, or the mucous membrane of the middle ear or Eustachian tube; from chronic suppurative conditions, or from sclerosis or necrosis of the bony walls of the middle ear cavity or mastoid cells. As regards bone destruction, the greater the involvement of the inner table of the skull, the greater the likelihood of headache. From necrosis in this location, the toxins would enter the lymph channels along the dura. The gravity of such conditions in relation to infection of the meninges and the production of brain abscess is most obvious. For a general review of the subject of aural headache, the paper by Loughran, here quoted, and one by Oppenheimer[2] are recommended.

The present article is concerned primarily with functional headache caused reflexly by sclerosis and necrosis of the mastoid cells, and through toxic absorption of focal infections in the mastoid. I have had a dozen or more cases with chronic mastoiditis with a practically complete absence of objective symptoms and with headache as the only or the most prominent subjective symptom. It is rather surprising, however, to find in the literature so few reports of this condition, since such cases have a certain clinical picturesqueness, as it were, first, because of the uncertainty of diagnosis and the hesitancy of the operator to open the mastoid until he has made the most careful examination in these extremely quiescent mastoid conditions; second, because of the frequent difficulty in getting the patient to consent to operation after one's own mind is made up to it; and, third, because of the relief of headache experienced after operation. As has been said, cases presenting headache with slight or no ear symptoms are difficult to diagnose as aural headache, particularly as most of the cases usually have some concurrent trouble in the nose, the sinuses, or the tonsils which must be eliminated before the mastoid can be positively accused as the final cause of the headaches. However, unlike headaches of nasal or pharyngeal origin, these headaches accompanying a latent mastoiditis, though sometimes partially relieved are never eradicated by the preliminary work on the nose and nasopharynx.

*Paper read and discussed at a meeting of the New York Hospital Graduates' Club, April 28, 1921.

The causes of functional headache in latent mastoiditis have already been stated as toxic absorption and sclerosis and necrosis of the mastoid bone. However, I cannot positively distinguish whether the different clinical types of functional headache seen in various cases were due exclusively to one or to the other of these causes; probably headache phenomena from absorption and reflexly from bone destruction and attendant suppuration would both be present in the same patient.

It is very important to emphasize that the middle ear and the mastoid may be foci of infection quite as much as the tonsils or the teeth, as this is a fact apparently unknown to the general public, often unobserved by the general practitioner, and even overlooked at times by aurists. The relation between headache and mastoiditis has never been brought to general attention. The literature of headache is endless, but the reference to the ear in that literature is utterly insignificant. The papers previously referred to by Loughran and by Oppenheimer are the only adequate ones on aural headache that I have been able to find. Hidden away in the literature of latent mastoiditis, may be cases reported with headache as a symptom, but they are not available through any index. Behan[3] in the 1920 issue of his book, "Pain," gives these words, only, to the subject of pain caused by ear trouble: "Ears cause head pain. The principal causes acting upon the ears to produce head pain are anemia and mastoid disease." Henry Head[4] in his classical monograph on "Disturbances of Sensation," states that "lesions of the membrana tympana and middle ear cause referred pain." This statement, however, refers only to conditions accompanying an *acute* purulent otitis media. Even the text-books on the diseases of the ear are also quite barren of observations of headache in chronic middle ear and mastoid disease; Dench, Phillips, and Kerrison make no mention of the symptomatology of headache in these conditions. Dan McKenzie[5] in his recent work, "Diseases of the Throat, Nose and Ear," in the section on *chronic* otitis media, states that among the danger signals of middle ear disease, "is headache in the occipital or temporal regions; or what is in reality much more frequent, in the frontal region." He says further that "quite commonly frontal headache of a low unobtrusive character attends chronic middle ear suppuration, and, as it is due to the general effects of simple septic absorption, it need not occasion alarm." Further search of the literature shows that Gill[6] and Goldsmith[7] include headache from the middle ear and the mastoid in general articles on headache from the nose, pharynx, eye, and ear; and that Patton[8] and Macpherson[9] have both reported cases of chronic mastoiditis with headache as a symptom. Beyond these few references the literature furnishes nothing, and it is small wonder if the general practitioner and men of other specialties are not inclined to believe that an apparently quiescent middle ear or mastoid can produce cases of such extreme headache as those to be reported.

Of the dozen or more cases seen, three which are especially clear examples of the clinical picture of mastoid headache have been selected to detail. The first of these also illustrates particularly the difficulty of getting other physicians to see the importance of the mastoid condition in cases of headache:

CASE I.—Mrs. T., about 40 years of age, residing in a nearby Jersey town, complained in September, 1917, of extreme nauseating periodic headaches, which she described as starting at a point sometimes in the frontal, sometimes in the occipital region, and then spreading over the entire cranium. They never began at the ear. They were at times so intense that her physician was obliged to administer hypodermics of morphine. These attacks had been recurring for a number of years; formerly she had been treated by several aurists and she was still going to other different specialists for relief.

Examination: A small but strong and sturdy woman; the nose tight and undeveloped; the septum fairly straight; the turbinates enlarged, in contact with the septum, and occupying most of the lumen of the nose; the right ear normal; the left ear showed an O. M. P. C., residual; hearing impaired. She gave a history of having had occasional discharge from this left ear, but it was dry when I saw it, and had been so for the past few years. There were no further signs of mastoid involvement; no changes in the external auditory canal; no tenderness over the mastoid. She was given general nasal treatments. The following spring she returned with the same complaint of violent uncontrollable headaches. The radiographs showed granulations in the frontals and in both ethmoids; the left mastoid contained granulations or pus, with a possible slight amount of bone destruction toward the tip. At this time the left middle turbinate was removed, the infundibulum broken into, and the frontal and ethmoidal cells drained. I asked for an interval mastoid operation, which was refused. After the relief of the nasal condition, and by taking greater care of her general health, she got through the next two years a trifle more comfortably than formerly; there was some diminution in the severity and frequency of the headaches, although there were still occasional flare-ups in which she required hypodermics of morphine. During this period, as has been said, specialists in other lines were attempting in every way to solve the problem of her headaches; they were attributed to gastric disorders, anemia, etc. The blood chemistry was carefully gone into at Roosevelt Hospital and was found practically normal. One very excellent internist wanted to apply Dr. Vincent Lyons' method of gall-bladder drainage.

In March, 1921, conditions changed. The patient caught cold through getting her feet wet, and immediately had an exacerbation of the trouble in her left ear, which had been quiescent for several years. The ear now began to discharge profusely, and the two aurists whom her local physician had called in were treating it by irrigations. The discharge kept increasing in volume; the headaches at this time were so severe that the patient was delirious and had to be kept under morphine. When called in consultation I found an acute exacerbation of the old chronic mastoiditis with profuse discharge, but still no tenderness over the mastoid. Fever, nausea, and vertigo were present. Immediate opening was advised.

Dr. Law's report of the second radiograph reads: "The left mastoid shows sclerosis in the tip and posterior to the anterior wall of the sinus. The cellular structure contains granulations or pus with evidences of bone softening." Operation revealed an unusually thick cortex, very sclerotic, with necrotic bone all around the mastoid antrum and running down to the tip and above to the temporosphenoidal lobe, a large area of which was exposed.

After operation, complications arose; the patient had severe chills, the temperature went up to 105½°, and the delirium was more marked. A white cell count gave 19,000 leucocytes with 89 per cent. polynuclears. Although the blood culture was negative, the typical signs of lateral sinus involvement were present; it became necessary to obliterate the sinus and to excise the left jugular. After this second operation the irrational condition persisted for some days even after the temperature went down. I was fearful of intracranial complications, but in the absence of the Babinski and Koenig reflexes, and of word deafness, Dr. Foster Kennedy pronounced the delirium as due solely to "nerve

exhaustion and strain." The patient recovered and her headaches have ceased.

Two years had elapsed from the time that the mastoid operation was first advised to the time it was performed, and in the meantime those headaches had baffled many specialists, but it was quite impossible to persuade them that the mastoid was the exciting cause. In the absence of obvious mastoid signs, such as tenderness, or collapse of the external auditory canal, they could not believe that pain which started in the frontal or the occipital region instead of near the mastoid could be referred to apparently so slight a condition as showed in the middle ear. Yet, Dr. Loughran in his article states that a neuralgia, the result of toxic absorption due to an acute or chronic suppurative process in the middle ear or mastoid, is not necessarily confined to the nerves directly connected with the temporal bone, but may occur in any portion of the cranium, chiefly the frontal or occipital region, in the same way as with those conditions of nerve irritation produced by absorption from the gastrointestinal tract or foci of infection in any portion of the body. He also states that reflex neuralgias from chronic suppurative conditions or necrosis of the bony walls of the middle ear cavity or the mastoid cells, while usually confined to the side of the head connected with the diseased ear, are as frequently found located in the occipital or vertex region. In the case under discussion, it is plain that for a very long time a process of toxic absorption was going on from the condition of the mastoid which may very well have aggravated any toxemic process in the gastrointestinal tract, and been, in turn, influenced by it, so that a vicious circle was formed. It is true, however, that the ear was the main source of trouble, as proof is furnished by the relief of headaches with the relief of the ear condition.

Another patient with the same type of headaches as those in the case just described was seen at the Manhattan Eye, Ear and Throat Hospital, in the service of Dr. Rae. Her case is impressed upon my mind by the fact that the patient, who was too ignorant to appreciate the seriousness of the mastoid condition, insisted upon coming around to thank us for relief from the unendurable periodic headaches from which she had previously suffered.

CASE II.—Two other cases out of the total number seen seem particularly illustrative of the varying clinical histories of these conditions. The first, a boy of 18, had an acute otitis media and a mastoiditis during the summer of 1917. The mastoiditis did not warrant operation and later subsided and the ear became dry. Colds and symptoms of infection of the ethmoids were greatly benefited by nasal treatments and breathing exercises. He continued in pretty good condition for almost two years as far as the ear was concerned, as there was no running or pain whatsoever. However, during this period he had attacks, how frequent cannot quite be determined, as the boy tried to make light of them, of severe hemicrania on the side of the affected ear, which he described as "neuralgia all over the side of the head." These attacks came on consequent to any disturbance of the circulation, due particularly to colds and indigestion. In June, 1919, because of infection following a severe cold, the left middle turbinate was removed and the ethmoidal cells and antrum cleaned out. He responded well to the treatment during the following summer, but in January, 1920, following another cold, he had an especially severe attack of his so-called "neuralgic headache," and complained a little of his left ear. Examination of the ear showed simply a tubo-tympanitis. The radiograph revealed sclerosis of the lower one-third of the mastoid including the tip, with some granulations or pus in the cellular area. Operation showed up a particularly large area of sclerosis with underlying necrosis. The patient is well to date, over a year since operation; the "neuralgic headaches" disappeared immediately after the removal of their cause and have not returned at all.

CASE III.—The last case is perhaps the most remarkable one with headache as a symptom of chronic mastoiditis that I have encountered. A girl of 16 years seen in the spring of 1912 complained of severe frontal and occipital headaches. Examination showed that her nose was "crowded" and undeveloped, and her tonsils small but diseased. Both ears were apparently perfectly normal. Inquiry revealed that she had had discharge from the left ear for a short time in childhood, but it had long since dried up and been forgotten. Local treatment was given the nose and pharynx. I had no suspicion at this time that the ears were implicated in the headaches. Two years later, in 1914, the girl returned with the same frontal headaches. The *x*-ray plates showed cloudiness in the frontal sinuses, deflection of the nasal septum, and unusual size of both turbinate bodies. Again, two years later, in 1916, she made the same complaint of frontal headches. As the tonsils were exuding much cheesy matter they were enucleated and the adenoids removed. It was after this that she first made mention of pain in the left ear, but examination showed nothing abnormal. Several months later a submucous resection was performed and both the enlarged middle turbinates removed. A few weeks later she again complained of pain in the left ear, and her temperature rose. The pains became more severe and radiated all over the left side of her head. For the first time there was a slight drooping of the superior canal wall. The radiograph showed an old chronic involvement of the mastoid. The mastoid operation was performed March, 1917, just five years after she had first complained to me of headache. In those years she had had regular periodic acute frontal headaches and no ear symptoms whatsoever. Operation showed a very large mastoid all badly infected. Some of the dura and the emissary vein were exposed. The patient has been permanently relieved of her headaches; she is well today, four years after operation.

Summary.—Among all the cases of chronic quiescent middle ear and mastoid trouble, there is a certain proportion of cases in which the objective symptoms do not apparently account for the subjective symptom of acute periodic headache. The proportion is small; the literature furnishes no figures; it is impossible even to give exact figures for the number of cases I have seen myself, as I had observed such cases before beginning to classify them in my own mind. I can safely say, however, that I have had over a dozen definite cases in which headache was caused by latent mastoiditis, and as many more which I believe to be cases of this type, but without definite proof, as they never came to an operation or were lost sight of. This is, of course, a trifling percentage out of the total number of cases of chronic latent mastoiditis seen by any aurist.

Conversely, among all the cases of periodic headache, there is a still smaller proportion which are due to chronic conditions of the mastoid. However, these cases, although infrequent, are serious—not only because of the severity of the headache, but because of the difficulty of diagnosis, and the gravity of the latent mastoiditis of which the headache is a symptom.

The mastoid conditions underlying these headaches may be: focal infection in the mastoid cells; or, chronic suppuration, or sclerosis, or necrosis of the bony wall of the middle ear cavity and mastoid

cells. Since it is possible for a diseased condition of the mastoid to be present for a long time with no subjective symptoms whatsoever, it is impossible to say why certain patients should present acute periodic headache as a symptom, while others do not.

Given this underlying condition of the ear, the recurring headaches may be still further precipitated by any disturbance of the circulation, by congestion from gastrointestinal upsets, constipation, colds, fatigue, worry, a thousand different things, a fact which further confuses diagnosis when examination of the ear has been overlooked.

Headache is a general symptom. Cases of periodic acute headache come to all physicians, most frequently probably to the general practitioner. In making his examination, the physician takes into consideration the condition of the alimentary tract, the kidneys, the heart, the lungs. He may examine the stomach contents and the stools and find conditions that lead him to believe that improper functionating is the cause of the headaches. The blood chemistry may show want of proper elimination or implicate the kidneys. Again, if there is obvious eye strain, the physician will turn the patient over to the oculist, or if there are repeated colds and pain in the frontal regions, he may suspect the sinuses.

The point to be emphasized is that when a patient complaining of headaches is examined, a complete history is not obtained unless the ear is considered. There does not have to be any *active* process present to demand consideration; the most innocent looking ear may harbor an underlying infection. Information should be elicited from the patient as to whether he ever had an earache or had the ear opened in childhood or even in infancy. This information is often hard to get; the trouble occurred so long ago that the patient has forgotten or never knew of it and may have to call on his family for information. Frequently the physician finds out that the ear was opened at some remote period and that there has never been any further trouble.

In cases presenting headache as a symptom, ears that have once been infected, no matter how long ago, must be suspected of being a possible focus of infection or of producing reflex pain through suppuration or sclerosis, particularly in those patients who show no other focus of infection and who do not respond readily to treatment directed at other conditions. Such patients to be treated fairly must have a functional examination of the ear by a competent aurist, and equally important, an *x*-ray picture. If such examination reveals a chronic latent condition of the mastoid, proper treatment should be seriously considered while the mastoid is quiescent, without waiting until it has the chance to become acute. There is no possible way of curing headache due to infection of the mastoid except by operation for the removal of that infection. In this very limited series of cases such operation has never failed to remove the headache along with its cause.

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16 EAST FIFTY-FOURTH STREET.

FLUOROSCOPE IN THE DIAGNOSIS OF DISEASES OF THE HEART*.

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I HAVE observed that the fluoroscope is relatively more employed in Edinburgh than in New York City. An *x*-ray examination of the heart was a routine measure in 1908 in the Clinic of Dr. Groedel of Bad-Nauheim, though strangely enough little stress was laid on it. The profession was still laboring under the belief that when the exact size of the heart had been determined, the supreme question of the condition of the heart had been decided. So much was said in those days about the size of the heart and so little was known about its shape during life that those men spent most of their time making measurements rather than in observing the shape of the heart and the functional activity in its various chambers.

It was the custom at that time, if any of you remember, to speak of enlargement of the heart as a matter of importance from a point of view of treatment and to measure the benefits of treatment by supposed reduction in the size of the heart.

For these reasons the *x*-ray examination in the form of orthodiagraphy was used to make a definite outline of the heart with particular reference to measurement of its size. Curiously enough the fluoroscopic diagnosis of the activities of the different chambers of the heart and the probable auricular and valvular defects as well as the discovery of congenital lesions was passed over lightly. The idea that this method could compete with the ancient and honorable institution of auscultation and percussion never entered the mind of even so skillful a worker as Franz Groedel.

Nevertheless, unconsciously they gained a great deal of skill and I remember how often the younger Franz Groedel could independently conclude by sight what his father had determined by history, auscultation, and a general examination of the person. In fact, it is extremely easy to distinguish a mitral heart from an aortic heart and many other important points. Fluoroscopy, I venture to assert, will become a routine measure in every physician's office before very long. The fact that it was desirable to have a meeting of this kind to popularize

*Read at the meeting of the Medical Society of the Greater City of New York at the New York Academy of Medicine, January 16, 1922.

this method of examination of the heart in New York City will be looked upon as a curiosity.

For several years I have examined with the fluoroscope every patient who has come to me. I have at the same time recorded the picture with a film. The fluoroscopic examination which allows me to observe the relative activity of the various chambers of the heart and the pulsations of the large vessels, has furnished me with a real impression of the condition. The film has enabled me to recall the visual observation at a later period. I doubt very much if the photographic print, alone, would be able to give me anything like the same knowledge of the heart condition as the fluoroscope. I would rather forego the roentgenogram than the privilege of observing the heart in all of its activities.

Although a series of *x*-ray plates furnish a permanent record, many people are excluded from the benefits of an *x*-ray examination entirely on account of the labor and expense involved, thus making it a rather formidable matter. As a result, physicians are deprived of the training which comes only from repeated examinations. In my opinion there is nothing that can take the place of fluoroscopy as a short-cut in the diagnosis of cardiac disease. It must not, however, be allowed to lead into error. Like every method of examination, fluoroscopy must be combined as much as possible with every other method. There will, of course, always be instances where the accompanying history and findings are necessary to check results. I venture to say at this time, what I do not believe ten years from now any one will deny, that in the detection of minor impairments of the heart the fluoroscope is vastly superior to the stethoscope, and when it is supplemented by the electrocardiograph, at least 30 per cent. of otherwise unknown conditions are added to the factors that must be considered.

The effect on people suffering from heart disease of adding to the number of conditions that must be taken into consideration is, on the whole beneficial. Many individuals with minor impairments are perfectly conscious themselves that something is the matter with them and they will not take a negative opinion from any one. If somebody is able to recognize the impairment and explain it, the person can be relieved or he may even be able to carry his impairment in a philosophical manner, which was not possible when his trouble was a mystery.

Medical students are now receiving an intensive training in the anatomy and physiology of the heart so that facts which are at present known to only a few will be a matter of course to the next generation of physicians. In the interim, it behooves our larger institutions to adopt fluoroscopy as a routine matter because it will reveal a large per cent. of unsuspected impairments and will thus save an immense amount of labor in drawing inferences without sufficient data. It will also occasionally reveal a condition of the abdomen or chest which calls for prompt operative intervention and as a result save life.

When physicians first began to examine the chest with the *x*-ray their impression was that it would prove of great importance in the diagnosis of intrathoracic conditions. It was soon shown, however, that on account of the distortion of the shadows and so forth, nothing very precise could be made out. This led to the development of the orthodiagraphic methods and improvement in the technique of making pictures. These methods have been carried on for many years, but it is now possible for us to retrace our steps and take up the study of fluoroscopy and make a definite diagnosis. In other words, founded upon the precise findings of orthodiagraphy and radiography, we are able with sufficient experience to make a definite diagnosis by fluoroscopy.

The fluoroscope gives only a general view of the thorax. When the chest is placed behind the screen and the roentgen tube is charged one sees the shadow of the mediastinum outlined on the clearer borders of the lungs. The heart pulsations are clearly perceived and the respiratory movements are interpreted by the vertical displacement of the heart, by the raising of the ribs, by the outline of the thoracic cavity, and by the raising and lowering of the diaphragm. The anterior and posterior mediastinal spaces are shown by rotating the body of the patient from right to left and from left to right. These appear clearly because of the slight density of the tissues and it is easy to observe the outline of the denser organs as well as to discover additional shadows of pathological origin. Finally, examinations in the dorsal or lateral positions complete in a very short time a series of observations of the thoracic shadows as a whole.

The mental process of discounting a distortion of the shadows due to the nearness of the tube in fluoroscopy is much easier than one would suppose. I have records of 2,000 such examinations. In each instance I studied the heart with the fluoroscope and subsequently in a teleoroentgenogram. I believe that I have acquired the faculty of mentally discounting the larger shadows of the fluoroscope. At any rate the observation of the heart with the fluoroscope enables me to form an opinion of the condition that is usually confirmed by collateral investigations.

When I have had the opportunity to stand beside an accomplished fluoroscopist and observe hearts as they passed in rapid succession, I have found there was very little difference in opinion as to the diagnosis of the condition in the vast majority of cases and that this impression was confirmed when the details of the case were known later. I prefer seeing a heart with the fluoroscope before knowing much about the condition because even in the absence of disease, the direct observation of the heart makes me acquainted with its general personality, as it were, which forms a good basis to build my survey upon. Indeed, one of the great difficulties in the whole subject of the heart is this matter of the individuality of hearts. The student insistently demands a description of what he is pleased to call a "normal heart." There is really no such entity as a normal heart. The nearest approach can be found in a heart which is normal to the person carrying it. The heart of a laborer would be abnormal to a bookkeeper; and the heart of a tall, thin man would be a strange finding in the chest of a short, fat person.

When the heart is observed from the front, one sees the right side of the heart, that is on the left when looking into the fluoroscope, the curved mov-

ing border being the right auricle. Above this, one observes the contour of the aorta, although in many people it is concealed behind the sternum. On the left side of the heart, which is the right of the observer when looking into the fluoroscope, there are three semicircular outlines; the upper one represents the aorta, the one next below the pulmonary artery and the outline below this one, which is a large curve, is the left ventricle. One definitely considers each of these curves in practical fluoroscopy.

The heart, as seen by the fluoroscope, varies according to the position of the patient so that one must be familiar with the fluoroscopic images in various directions. As a rule, the fluoroscopic examination in the anteroposterior positions is sufficient, but the person may be rotated and various views obtained. The upright position fulfills all purposes in most instances.

The following description of the various positions of the heart is adapted from the section on clinical significance of *x*-ray examination in "The Radiogram and Orthodiagram," by Carl J. Wiggers, pp. 244-246.

Combined fluoroscopic, radiographic and orthodiagraphic examination of diseased conditions give evidence of the nature of affection through the occurrence of changes in (*a*) the character of the pulsation, (*b*) the position of the heart and (*c*) the size and form of its outline.

In fluoroscopic examinations the lower right border (right auricle) expands extensively during systole in some cases of tricuspid regurgitation. The upper left border (aorta) gives strong systolic expansions in aortic insufficiency. Whenever the pulsations of the left auricle become visible, as in mitral lesions, they are differentiated by being presystolic in time. Strong pulsations of the pulmonary artery are evident on the left side in cases of persistent ductus arteriosus, or more frequently, when a severe stasis due to mitral lesions is present. They have been observed when an aneurysm ruptures into the pulmonary artery, but this event is rare. Abnormal rhythms, as heart block and pulsus alternans, have been studied and diagnosed by fluoroscopic methods, but this procedure possesses no obvious advantages over auscultation.

A change in the position of the heart may occur (*a*) from congenital causes, as situs inversus viscerum, (*b*) from pleural and pericardial adhesions, or (*c*) from changes in the intrathoracic volume. These last are very common. Even normal variations are caused by the varying position of the diaphragm. In long-chested individuals the cardiac shadow is long and narrow, the axis being more vertical, while in short-chested individuals or in those in whom the diaphragm is pushed up by abdominal distention, it is broad and assumes a horizontal axis. Its position changes as the diaphragm ascends and descends in respiration. It should be remembered that normally the heart is subject to considerable shifting and undue weight should not be attached to slight variations in position. If for any pathological cause (*e.g.* enlargement of the liver) the right dome of the diaphragm is pushed upward, the heart shadow will be displaced to the left. Pulmonary affections such an atalectasis, tuberculosis and pneumothorax cause a traction on the heart toward the side of the lesion. On the contrary, pleural effusions, tumors, etc., push the heart toward the opposite side.

Changes in the size of the heart shadow or orthodiagram when sufficiently marked to be safely beyond the limits of normal variation, are of the greatest practical importance when obtained by guarded technique. The heart shadow probably decreases whenever the heart accelerates (*e.g* in exercise, tachycardia, after atrophine), although the results obtained concerning this point have been discordant. During asthmatic attacks the heart is also reduced in size. A condition stimulating asthma, as far as the effect upon the circulation is concerned, can be produced by the well-known experiment of Valsalva which consists in taking a deep inspiration and then, with closed glottis, making a forced expiration. This diminishes the blood content of the heart which accounts for its decreased size. In tuberculosis the shadow is decreased, and here it is often assigned, but without good reasons, to an actual hypoplasia of the heart muscle.

The heart outline increases after continued hard labor or exercise, pathologically also in nephritis and arteriosclerosis. In these cases an actual hypertrophy resulting from the greater strain to which the heart has been continually subjected is usually the cause. The increase in size (often temporary) associated with acute infections such as diphtheria, scarlet fever and polyarthritis is no doubt accounted for by a dilatation of the heart.

The details of the enlargement are of the greatest importance in heart lesions in which case it is due either to dilatation or to hypertrophy and hence accompanies only lesions of considerable duration and severity. The nature of the dilatation or hypertrophy determines the direction of the enlargement and the contour of the shadow. A left ventricular enlargement takes place to the left. Dilatation or hypertrophy of the right ventricle displaces the shadow partly to the right but also, to a marked degree, upward and to the left. In typical cases of aortic insufficiency the heart shadow is enormously increased toward the left and the contour resembles a horizontal oval or is sometimes called "shoe-shaped." The aortic shadow is increased in width and the apex is never merged with the shadow of the diaphragm. Aortic stenosis causes very similar though less pronounced changes in the radiographic outline. In mitral stenosis the heart shadow which is relatively small, resembles more nearly a vertical oval. The enlarged left auricle becomes prominent on the left margin and above it the pulmonary artery bulges, thus giving the entire left border a step-like appearance. In mitral insufficiency the enlargement tends to be uniform in all directions giving the shadow the appearance of a poorly rounded circle. The right auricular border is distinctly enlarged to the right and the pulmonary artery dilated. The left ventricular shadow is increased toward the left.

With reference to shadows of the heart in its normal state, an excellent description is to be found in Chapter II of the "Heart and the Aorta," by Vaquez and Bordet.

The one disappointing element in this subject of fluoroscopy is that the question of personal skill comes in and training of the observer is necessary. It is always the ideal of scientific work to substitute some mathematical formula or instrument of precision that will eliminate the personal equation. In cardiology nothing is more popular than the arithmetical formula, but so far it has usually failed to be useful.

Fluoroscopy, however, is capable of systematic development and of very definite interpretation. It is particularly valuable in proving and disproving a negative diagnosis. Striking instances appear in daily work where pretty good men pronounce a heart normal when the fluoroscopic examination, even to the casual observer, shows enlargement or deformity of the cardiac image.

I particularly advocate fluoroscopy as a routine procedure in the examination of large numbers of patients to determine which are deserving of detailed cardiologic study and which are not.

109 EAST 61ST STREET.

Syphilis and Cancer.—Some years ago Ozenne wrote a valuable monograph on the relationship of these two affections and quite recently made an official report on the same subject before the Société de Médecine de Paris. He has not changed his opinion that the syphilitic is a candidate for cancer, chiefly through leucoplakia and the occasional development of epithelioma in a gummatous lesion.—*Le Progrès Médical.*

CARCINOMA OF THE PANCREAS.*

By JOHN B. DEAVER, M.D.,

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I do not know whether what I have to say on Cancer of the Pancreas will contribute a great deal to the deliberations of cancer week. The condition is fortunately not a frequent one. I believe statistics rank it as comprising from one-half to one per cent. of all carcinomata with which the human body is afflicted, and not many of which are curable even by radium.

The solid tumors of the pancreas are rarely benign, and the most frequent type of malignant tumor is carcinoma. Like other diseases of the pancreas, carcinoma is a disease of middle life with an apparent preference for the male sex. The tumor is usually small in size, in fact it may be overlooked until the liver or stomach has become involved, so that very often a mistaken diagnosis of cancer of the liver or stomach is made. Again, as in other diseases of the pancreas, the head is more frequently involved than the body or the tail of the organ. This fact at once accounts for the outstanding symptom of cancer of the pancreas namely, jaundice due to obstruction of the common duct, although no very typical picture of the disease can be outlined since it is subject to many variations. The jaundice associated with cancer of the head of the pancreas is painless and is marked by persistence without intermission or remission, together with the constant absence of bile and pancreatic ferments from the duodenal contents. As a rule, the jaundice begins with a light icteric hue and gradually deepens in intensity. When the tumor causes obstruction of the ducts of the pancreas itself, there results pancreatic insufficiency, signs of chronic toxemia, as evidenced by marked digestive disturbances and signs of absorption, together with rapid emaciation and exhaustion ending in death in from four to six months. The gall bladder becomes distended in about one-half the cases, particularly where there is no history of previous disease of the gall bladder. The distention results from back pressure of bile due to obstruction of the common duct. This distention does not take place when the gall bladder, owing to the pressure of the disease, has lost its elasticity. It is for this reason that obstructive jaundice assumes such importance in the diagnosis of carcinoma of the pancreas. The tumor may or may not be palpable. Owing, however, to the usual small size of these neoplasms, and the deep seated location of the pancreas they usually are not palpable. Other clinical manifestations are the clay-colored stools, disturbed pancreatic digestion, as evidenced by undigested food particles in the stools, and the reduction or absence of ferments in the stools and the duodenal contents. Study of the stools, however, has not resulted in any benefit to the writer.

Among the subjective symptoms pain is not a prominent one, although when present it occurs late in the disease and usually is deep seated and apt to be severe, marked by exacerbations and radiations to the back and the lumbar region. There is often a history of epigastric fullness after meals, nausea, loss of appetite, often with a particular aversion to fatty foods and to meats; progressive anemia and rapid emaciation.

The symptoms of the disease are subject to numerous variations, but at the same time the following outlines may be said to present a fairly satisfactory delineation of its most prominent features: Often the first signs of the disease are those of indigestion, followed by the onset of jaundice, dilatation of the gall bladder, unassociated with previous biliary colic, deep seated pain in the epigastrium or the liver, radiating to the back or to the lumbar region, anorexia, anemia, rapidly progressive emaciation.

So much for the signs and symptoms of cancer of the pancreas as they can be set forth in this kind of discussion. Cancer as we all know is neither an hereditary nor a contagious disease. But the greatest importance, as in all diseases, attaches to prevention. The key note of this entire week's deliberation is early attention to conditions that may ultimately develop into cancer. So far as cancer of the pancreas is concerned, such a precancerous state is recognized in chronic pancreatitis, in which the head of the pancreas develops a degree of hardness, which even at the operating table is scarcely distinguishable from carcinoma, and often is the forerunner of malignant disease of the pancreas.

The anatomical relations of the pancreas are such that infection of the neighboring organs is readily carried to the pancreas by way of the lymphatic system which is in free intercommunication with these viscera, such as the stomach, the gall bladder, the bile ducts and the liver. Although it seems to be an established clinical fact that previous attacks of biliary colic do not form part of the history of cancer of the pancreas, there is little doubt but that chronic pancreatitis very often accompanies disease of the bile passages and of the duodenum and the stomach. The conclusion therefore is at hand that one possible way of preventing the development of cancer of the pancreas is by preventing the development of chronic pancreatitis, and that is by early attention to disease of the viscera above referred to. That these latter conditions can be cured to a very great extent is generally conceded. But cancer of the pancreas can never be cured, the only thing that surgery offers is to relieve back pressure of the bile and the intolerable itching caused by the jaundice. The pancreas represents one of the few regions which the modern surgeon still approaches with a considerable degree of hesitation. Complete removal seems to be necessarily fatal. Resection and partial removal have been tried with a little success, but they can scarcely be considered safe operations. Surgery, as I have said, offers little, if anything in a way of a cure; palliative measures are the only ones at our disposal. Again I desire to emphasize the role played by preventive surgery. We can by early surgical attention cure certain diseases of the stomach, the duodenum, the gallbladder, and the bile ducts, and thus to some extent prevent chronic pancreatitis and possibly cancer of the pancreas.

*Read before the Philadelphia County Medical Society during the Cancer Week.

The object of these discussions is not to spread unnecessary alarm, but rather to spread a little knowledge on the subject of cancer, knowledge which in this instance is not a dangerous thing. Cancer is a baffling disease whose cause and origin are still enshrouded behind the veil of mystery, and the cure for which will not be found until the veil is lifted. All that we do know at the present time is that irritation forms the basis of cancerous disease. The conditions which I have mentioned are a source of irritation to the pancreas. So that every effort must be directed to prevent that irritation, just as in cancer in general at present all our endeavors must be aimed at prevention.

1634 WALNUT STREET.

NOTES ON THE CLINICAL VALUE OF RADIUM IN THE MANAGEMENT OF UTERINE HEMORRHAGE.*

SOME END RESULTS.

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RADIUM has established for itself a definite place in gynecology in the treatment of uterine hemorrhage; not only in the bleeding caused by fibroids, but in the so-called myopathic bleeding in young girls and spinsters, and the excessive menstrual flow met with in women with subinvolution and fibrosis of the uterus. It has a further place in the treatment of leucorrhea resulting from cervical inflammation, and while it cures this condition by the destruction of the glands and the substitution of scar tissue, it is less destructive to the cervical tissues than any of the several forms of excision.

Its admitted use in cancer is granted, and personally we feel that it is only a matter of time when it will replace operation, for all cancer is cured by the individual producing an immunity against the disease. This immunity, operation breaks down, and hence cancer grows and metastasis takes place unless the removal has been complete. Gaylord has shown that it is possible for mice and rats to produce immunity against implanted growths and live for months and even years with a localized swelling which has no tendency to spread until the resistance is lowered by blood loss or anesthesia—then the cancer promptly grows.

When one thinks of the long, radical operation, with its extensive tissue exposure and trauma, and the prolonged anesthesia necessary to perform this operation, one can readily see how the patient's immunity is necessarily reduced. This explains the prompt recurrence following many of our incomplete efforts at removal and is to me the most striking illustration of why radium, which has a special selective action for certain tumor cells, effects a cure, or at least increases the longevity, for the individual resistance is not impaired.

During the past six years we have been using radium almost daily, with more or less success. Our follow-up system, which is detailed, has given us the opportunity to see the results, modify our indications, and limit the forms of application.

*Read before the New York Physicians' Association, May, 1921.

First of all, let me say, that there is a decided difference in the application, as well as the results where the radium element is used and where the emanations are used; also let me say that intensive radium treatment, with one or two grams of radium element, does not enter into this discussion. Our results have been obtained, and what I have to say will apply to the man who has at his disposal from fifty to one hundred and fifty mgms. of radium element. The results which we have obtained can be had by the intelligent use of this amount.

While it is impressive to see the wonderful cures presented at the weekly conferences at the Memorial Hospital, these results have little clinical or practical bearing on the cases you and I will treat with our 100 or 150 mgms. of radium.

Myopathic Hemorrhages in Young Girls.—These bleedings are frequently excessive, some yield to the internal administration of endocrines and regulation of the lower bowel. When the bleeding has continued for any length of time, the endometrium becomes hypertrophied, and the uterus large and soft, and the os is very likely to be open. These cases were formerly curetted after all other forms of internal medication had failed, and a secondary anemia had been induced. After curetting there was usually an amenorrhea for a month or two, when this was followed again with a metrorrhagia. This same case treated by radium, for from 300 to 600 mgm. hours with the radium properly filtered with glass, silver, and brass, and this covered with rubber, which practically cuts out all of the alpha and beta rays, will establish a normal menstruation after one séance. Once only have we had occasion to repeat the exposure. In this class *there were* 31 *cases treated, the average dosage was* 400 *mgm. hours, and only one application was given in* 30 *of this series.* The results show that the quantity of the menstruation was regulated in every instance, except one, which required two subsequent applications. The last was followed by amenorrhea for one year, when the menses were reestablished and recurred regularly. Six of these girls are now married, and two have become pregnant, a fact which answers some of the criticisms which are made of using radium in young girls.

Radium in Myomata.—Radium will control the hemorrhage of uterine myomata and in a large number of cases will reduce the size of the tumor, provided the tumor is intramural or submucous, and not pedunculated. Nevertheless, operation is still the procedure of choice in most myomata, for the indications for radium are limited and it has certain definite *disadvantages*, such as: First: While it controls bleeding, and in the majority of cases reduces the size of the tumor, nodules outside of the uterus may be left without a blood supply and consequently are more likely to give trouble.

Second: Malignant complications, already in the tumor, may be overlooked, for it has been shown that sarcoma is found in serial section in about 9 per cent. in submucous tumors—consequently we can lay down the dictum that radium is never permissible in submucous growths or unless a diagnostic curettage is possible, for while remarkable results have been shown following radiation of cervical cancer, body carcinoma is not amenable to the effects of the rays.

Third: About 54 per cent. of all fibroids are complicated by some form of tuboovarian disease, consequently many of these intrapelvic complicating lesions are missed, and while the tumor is shrunk, and the hemorrhage controlled the associated lesions help to keep up the patient's invalidism.

Fourth: Radiation, when applied in sufficient dosage to check hemorrhage and shrink the tumor, will seriously impair the reproductive functions in young women, and therefore should not be used as a procedure of choice in this class of cases.

Fifth: One of the symptoms of fibroid which requires treatment is the pressure symptom—here the effect of radium is too slow to relieve the conditions which intraligamentous growths produce on the ureters and blood vessels.

Sixth: The immediate effect of radium is the production of edema and excitation of inflammatory reaction; hence, in the presence of old inflammatory adnexal lesions, this reaction becomes more marked.

Finally: Radiation will increase the necrosis in tumors which are already necrotic, and by added acidosis increase the toxemia of the patient.

Against these disadvantages radium has certain definite advantages in the treatment of fibroid tumors, particularly if proper selection is made. These *advantages* are: First: There is no operative mortality. There is no general anesthetic. There are no postoperative complications, and there is prompt control of uterine hemorrhage.

Second: Should radium fail, operation is always possible.

Third: The menopausal symptoms are not so marked.

Fourth: In intramural tumors we can not only expect absolute cessation of the hemorrhage, but shrinking in the tumor in over 65 per cent. of the growths.

Fifth: Radium is the procedure of choice in myomata complicated by heart disease, extreme anemia, diabetes, and chronic nephritis.

We have confined radiation in fibroids to those tumors which are not larger than a four months pregnancy, where the growth is definitely intramural, and there are no subperitoneal nodules of any considerable size; and to those submucous tumors which, after careful examination under anesthesia, are shown to be sessile.

In all we have treated 106 of these growths by radiation. These patients have had from 2,000 to 3,000 mgm. hours; the radium element has been applied directly to the interior of the uterus, the alpha and beta rays have been excluded by proper filters. I have the follow-up records of all of these cases, and only two have needed subsequent operation; in these, both large submucous tumors, the bleeding recurred, and on operation it was found that the tumors had undergone a marked edema.

In 104 the bleeding ceased and has never recurred, after the first menstruation, which was more profuse in a number of instances than some of the previous bleedings. This, in turn, was followed by a serosanguinous discharge, which persisted for several weeks. In 80 of these tumors the growth had shrunken to less than half of the original size, and in 20 it has entirely disappeared.

The largest class of cases which come to us for relief are the bleedings resulting from subinvolution and fibrosis of the uterus without lateral or posterior parametritis, or a history of pelvic inflammation.

My associates and I have seen and applied radiation to 260 women, who can be included in this class. There have been no failures to check the bleeding, and the majority of these uteri have, after a period of several months, become senile in character, and menopausal symptoms have appeared. Several in this class which were associated with prolapse have subsequently been operated upon, and the uterus interposed under the bladder with resulting cures of the descensus.

20 LIVINGSTON STREET.

EPIDEMIC ENCEPHALITIS SIMULATING BRAIN TUMOR.*

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THE more one studies the different types of epidemic encephalitis, the more fully one realizes the marked protean nature of the symptomatic manifestations of this disorder. Syphilis alone rivals this disease in producing so many different clinical pictures. Brain tumor has been regarded as a disease which, though at times escaping detection, is, as a rule, readily diagnosed by the average clinician, especially when it is advanced to the stage of producing general symptoms such as choked discs, projectile vomiting and intense headache.

The following cases of epidemic encephalitis are reported because they have simulated closely the clinical course of brain tumor cases. In two of the cases operative interference was decided upon, but the operations were not performed because permission was refused in one instance by the patient and in the other by a relative. The third case terminated fatally, and although no necropsy was performed, the consensus of opinion of the men who had closely followed the case was that it was a true case of epidemic encephalitis.

CASE I.—I. M., admitted to the psychopathic service of Bellevue Hospital on July 22, 1920, referred by the neurological department of the Vanderbilt Clinic. Male. Twelve years of age. White. Born in New York City. Schoolboy.

Family History.—His parents are Russian Hebrews, of normal intelligence. One sister is supposed to be mentally deficient. There are three brothers and four sisters living. The mother died following childbirth. There are no nervous or mental diseases in the family.

Personal History.—The boy was born at full term and labor was normal. He began to walk and talk at the usual age; his development was normal. He attended school from the age of six and was in Grade 6A at twelve years. He was considered a good student, was never left back in any of the grades, and had never shown anything to stamp him as an abnormal child. He had diphtheria at four and a left mastoid operation at six years of age. He had influenza at ten. In April, 1920, he was struck on the head with a broomstick, but no significance was attached to this, as he had no loss of consciousness nor anything of an unusual nature; but this incident was related by the sis-

*From the Psychopathic Service of Bellevue Hospital. Acknowledgment is made to Dr. M. S. Gregory, Director of the Psychopathic Service, for kindly criticism and permission to report these cases. Read before the New York Neurological Society, May 5, 1921.

ter in her effort to find the possible cause of his disease.

The present illness dates back to the early part of June, 1920. It was then noticed that the patient was losing interest in everything; that he did not play with the children of the neighborhood; would not go in the street; preferred to stay at home. At school he became rather inattentive and did not seem to take as much interest in his work as formerly; he was now slow in his studies, but whatever he did was fairly satisfactory; he was promoted at the end of the term because of the good record he had made in the early part of his school year. About the middle of June he began to show incoherence in speech and it was often difficult to understand him, as his speech was slurring and at times fairly thick. At the same time he began to drop things from his left hand. He had a few vomiting spells while at the dinner table and the vomiting was projectile in type and apparently without preceding nausea. There was no history of any complaint of diplopia or headache or of sphincteric disturbances.

Upon examination at Bellevue he showed the following: Well developed, somewhat pale boy, showing a dull and apparently expressionless facial appearance. He walked into the examining room, dragging the left foot and holding the left arm at his side in a limp fashion. There was a definite flaccidity in the left lower extremity. The equilibritory coordination tests were normal on the right side, but awkwardly performed on the left, on account of the flaccid paralysis. No adiadochocinesia, no dysmetria. The Romberg was negative. His skilled acts were performed well in the right hand, but awkwardly in the left. Speech was definitely monotonous, slurring and thick. No abnormal involuntary movements were seen at that time.

Reflexes.—Corneals and conjunctiva were equal and active on both sides. Upper lateral abdominal and lower lateral abdominal showed* 2 plus on the right side and 1 plus on the left; cremasterics were 2 plus on the right and only 1 plus on the left.

Biceps and triceps were 1 plus on the right and 2 plus on the left. Patellars showed 2 plus on the right and 4 plus on the left. The Achilles were 2 plus on the right and 3 plus on the left. There was a transient ankle clonus on the left and none on the right. Babinski was present on the left and absent on the right. Chaddock was absent on the right and present on the left.

His muscle strength showed that there was definite weakness of the left extremities as compared with the right. There was also definite weakness of the left side of the face. His general sensory examination could not be performed satisfactorily, as it was very difficult to get the patient's attention and also difficult to hold it. He seemed to experience difficulty in perception and in association. He responded, however, to most of the pain stimuli and recognized cold and warm sensations as well as tactile and vibratory sensations everywhere on the body. From the examination one gained the impression that there were no sensory disturbances.

Cranial Nerves.—His olfactory nerves were apparently intact. The vision was good in both eyes, and, although it was impossible to get the cooperation of the patient for proper perimetric tests, his visual fields seemed to be intact. Ophthalmic examination (attending ophthalmologist) showed the following: Right eye —Discs pink with blurred margins and radially striated. No exudate seen; disc elevated 1½ D. Left eye—Disc margins blurred and radially striated. No exudate nor hemorrhage seen. Veins over full. Disc elevated 0.5 D. Impression bilateral optic neuritis (this may be an early choked disc or of the inflammatory type). The pupils were equal, regular in outline and reacted promptly to light and to accommodation. There was no nystagmus, no extra ocular palsies. The corneals were present and active on both sides. There was a definite left facial weakness of the central type. Speech was definitely slurring and thick; tongue protruded to the midline and moved freely, though sluggishly, in every direction. The other cranial nerves appeared to be intact.

*1 plus = weak response; 2 plus = normal response; 3 plus = very active response; 4 plus = with transient clonus; 5 plus = with permanent clonus.

Mentally, the patient was quiet, did not complain of anything; appeared somewhat dazed, stupid, and apparently indifferent to his situation. He answered questions very slowly, but his answers were quite adequate, although slowly drawn out. While apparently in a state of utter indifference, further observation made it quite evident that patient was very bright; observed what took place on the ward and answered all questions quite relevantly and satisfactorily. However, he appeared to have a definite retention defect and association of ideas was somewhat retarded. He showed no delusions or hallucinations; his emotional reaction was quite adequate, and consistent with the stimulus eliciting it. His mood appearance was that of considerable tension. He seemed to have slight insight into his condition and whenever he would wet or soil himself he would burst into tears. He always recognized the examiner and nurses when visited, although he would soon relapse into an apparent state of lethargy and indifference. His heart and lungs were negative. Blood pressure 118/75. Pulse 80, respirations 20, temperature 98.6. Spinal fluid examination made July 29, 1920, showed 2 plus pressure; 1 plus globulin; 4 cells; negative Wassermann; colloidal gold was 0000100000; there was no growth obtained in any of the media after twelve days.

Blood Wassermann was negative. Blood count showed the following: Red blood corpuscles, 4,950,000; white blood cells, 11,000; polymorphonuclears, 75 per cent.; large lymphocytes, 15 per cent.; large mononuclears, 8 per cent.; eosinophiles, 2 per cent.

The patient continued to show a gradually increasing paralysis of the left side of the body with beginning involvement of the right. At the end of a week's residence he began to wet and occasionally to soil himself: he began to experience difficulty in swallowing solid food. A note dated July 31, 1920, states: "Slight drooping of left eye; right pupil does not react as well as left; left facial weakness of the central type; left arm flaccidly paralyzed; left lower extremity spastically paralyzed. Gait is hemiplegic, tendency to fall to the left. Left Babinski and a left Chaddock. Left inexhaustible ankle clonus; left exhaustible patellar clonus. Left knee jerk is 4 plus, while right is 3 plus; left abdominals are not elicited; right are present; left cremasteric is gone, while right is present. Pulse 96, regular, no respiratory difficulties." Eye grounds showed bilateral choked disc, the right elevated to 2 D. and the left to 1 D.

X-ray, August 3, 1920, showed "no fracture of the vault of the skull. The bones of the skull are of the usual thickness; there is no erosion of clinoid processes. Floor of the sella is well formed; no evidence of a tumor of the brain."

August 6, 1920.—Spinal fluid showed 2 plus pressure. 1 plus globulin, 5 cells; colloidal gold 0001100000; no growth on cultures. Patient continued to show apparently increasing drowsiness; his attention seemed to be somewhat clouded; he appeared puzzled and manifested obvious thinking difficulty. He never, however, was inaccessible; he tried to cooperate in examinations; would invariably recognize the examiner, showing this by smiling or nodding his head or lifting up his right arm. He found it very difficult to speak and the few words which he did utter were very indistinct and slurring and of the pseudobulbar type. His general mood was that of apparent depression. He would react to the visits of his friends and of the examiners in a natural way; would often burst into tears when his condition was discussed in his presence and his mood adequacy was that of normal reaction to his situation, although his mood appearance was that of apathy. He really showed a normal emotional response and often burst into tears when he had wet or soiled himself. When food was given to him he would begin to cry, as he apparently realized that he could not swallow it. After his recovery he explained that he knew this. At this time he began to show increasing difficulty in swallowing and would often regurgigate fluids. When asked if he had any headache, he would occasionally burst into crying and then again he would point toward his occipital region. The physical signs pointed to a steadily increasing growth in the right cerebral hemisphere, which indicated operative interference. Nevertheless, the study of the patient's mental picture led one to

doubt the presence of a new growth and strongly pointed to a condition of epidemic encephalitis. However, the consensus of opinion of the different men and the various consultants from other services seemed to be that there was a new growth present, and that the patient should be subjected to operative interference. He was, therefore, transferred to the neurological service on August 12, 1920. There the diagnosis was made of "an infiltrating glioma, starting from the right side beneath the cortex and passing to the left. The assumed extensiveness of the tumor leads to the opinion that operation is not indicated except to save sight." The parents refused to give their consent to the operation and the patient was left alone. He continued to grow physically worse. He would cry from time to time during the day, and would point to the right side of his head at such times when asked if he had any headache.

A note of September 11 states: "Pupils are both very irregular and respond to light poorly. Slight contraction at elbow of left side. Deep reflexes greater on the left side. Plantar response is definitely flexor on the right and is not so definitely flexor on the left. Abdominals are well preserved. There is a well sustained patellar clonus on the left and also an ankle clonus. The reflexes on the right are quite active and there is an exhaustible ankle clonus on that side. Except for the sudden crying at times, as noted above, the patient lies quietly in bed; both eyelids are tightly closed; the swallowing of food becomes increasingly difficult. Speech is entirely absent."

The first sign of improvement was noted on September 12, 1920, when a note was made to the effect that there was no papilloedema in either disc, and there was definite clearness of the disc arteries. The patient then gradualyy stopped crying, and swallowing had greatly improved. On September 16 the patient began to talk. A spinal fluid on September 19 was made showing 2 cells, negative globulin, negative Wassermann, and Fehling was reduced. In the early part of October he began to show definite masklike facial expression; still evidences of left residual hemiplegia; eye grounds were negative and he showed choreoathetoid movements in the left upper extremity. He began to walk on November 1, and continued to improve, so that he was discharged from the hospital on November 18, practically recovered except for residual left hemiplegia and masklike expression of the face.

The patient returned on March 4, 1921, being brought to the Out Patient Department of the Psychopathic Service by a worker of the Jewish Big Sisters. The history at that time was to the effect that following his discharge from the hospital patient was rather helpless; had to be dressed by his stepmother, seemed to show some difficulty in talking, was very awkward with his left hand, would often fly into rages, was unstable emotionally, easily irritated and could not sleep well at night. The worker stated that patient had returned to school, and was apparently getting along fairly well in his work, but that he had often shown in the classroom an irritability and distractibility which was annoying both to his teacher and the other pupils of the class.

A physical examination at that time showed rather interesting features. He walked into the examining room showing a characteristic left hemiplegic gait, the left hand being held at this side, flexed at the elbow and the hand flexed. He appeared very well developed; had gained at least fifteen pounds since his previous residence in the hospital. There was a definite slight left facial weakness. His coordination was good, all tests being performed well on the right side, but awkwardly on the left. No dysmetria, no adiadochocinesia. There was a definite involuntary movement of the left hand and forearm, and the fingers of the left hand would assume definite choreoathetoid movements on voluntary motion of any other part of the body. Skilled acts were well performed on the right, but poorly on the left.

Reflexes.—The corneals and conjunctiva were absent; the abdominals and cremasterics were present and equal on both sides. Biceps, right 2 plus, left 3 plus; wrist, right 2 plus and left 3 plus; knee jerks, right 3 plus and left 4 plus; Achilles, right 3 plus and left 4 plus. There was a definite left ankle clonus. There was a left Babinski. His cranial nerves showed left facial weakness; his pupils were unequal, the right bigger than left, and irregular in outline. The reaction both to light and accommodation was brisk. His eye grounds were clear, vessels were defined, but right disc showed definite haziness. There were no sensory disturbances whatever. Heart and lungs were negative.

Mentally, the patient appeared very pleasant and agreeable, but became easily excited and irritated. He gave a good account of his illness and recognized all the nurses who had had him in charge in the psychopathic word. He spoke fairly freely and in a coherent form. His emotional reaction was somewhat unstable, though adequate. His emotional tone was raised; his mood appearance was that of tension. His memory was good.

His orientation was correct. His retention was somewhat impaired, but this was due more to his attention disorder, which was manifested by some thinking difficulty and distractibility.

CASE II.—A. K., admitted to the psychopathic service of Bellevue Hospital on March 3, 1921. Female. White. Age, 42 years. Hebrew. Born in Austria; eleven years in the United States. Housewife; married at 25 years; had four living children; no miscarriages.

Family History.—Parents living; two brothers, one sister in good health. No nervous or mental disease in the family.

Personal history was uneventful; she was a housewife; no history of any trauma; has never been in any other hospital; very temperate in her habits.

Present illness dated back to February 18, 1921, when the patient began to complain of general malaise, headache, pains in chest, occasional cough and of gradually increasing weakness so that it was found necessary for her to go to bed during the day. On March 1, 1921, she suddenly complained that she could not eat any more, refused to talk to anyone, took to bed and would answer no questions and would speak at no time other than when she complained of being weak and of being unable to walk. At Bellevue on admission the patient appeared quiet and somatically ill, although her appearance showed a well nourished and well developed physical state. Her face was flushed, oily and greasy; pulse was of a low, weak type, and responses to questions were very slow and in a thick, weak, pseudobulbar monotonous manner. It was very difficult to elicit any equilibritory tests because the patient would not cooperate sufficiently to enable one to arrive at proper deductions. The impression gained, however, was that while awkwardly performed on the right side and fairly well on the left, there were no real abnormalities noted in this test. There were no abnormal involuntary movements. Regarding the muscle strength, it was found that the patient was unable to move the right side of the body, due to paralysis. Muscle tonus was increased on the right side of the body. The reflexes showed equally active corneal and conjunctival reflexes. Abdominals were bilaterally active. The biceps were 3 plus on the right side and 2 plus on the left. The triceps was 3 plus on the right and 2 plus on the left. The wrist jerk was 2 plus on the right and 1 plus on the left. Knee jerk was 3 plus on the right and 2 plus on the left. Achilles jerk was 4 plus on the right and 3 plus on the left. There was a definite right Babinski and right Oppenheim and Chaddock. There was a right exhaustible ankle clonus. The sensory examination was difficult to elicit on account of lack of cooperation, but there seemed to be no gross anesthesia to touch or pain.

Cranial nerves showed the following: Pupils were unequal, irregular in outline and reacted very sluggishly both to light and accommodation. Ophthalmological examination showed a definite elevation of the left disc to 1½ D.; the vessels were somewhat congested. The right side of the face was definitely flattened. The tongue pointed to the right when protruded in the midline. Other cranial nerves were intact. Heart and lungs were negative. Pulse, 80; respirations, 20; temperature, 98.0; blood pressure, 125/75. Urine was amber in color; specific gravity 1031; no albumen; no sugar; and showed occasional epithelial cell.

Blood chemistry on March 16, 1921, showed the fol-

lowing: Nonprotein nitrogen, 36 mg. per 100 c.c.; creatine, 1.4 mg. per 100 c.c.; uric acid, 1.2 mg, per 100 c.c.; alkaline reserve (CO_2 vol. per cent.), 58. Spinal fluid showed 2 plus pressure; 1 plus globulin; 3 cells; negative Wassermann and colloidal gold curve of 0012221100.

Mentally, the patient appeared rather irritable, accessible only with difficulty; ate insufficiently and was quite restless and somewhat resistive, and very uncleanly. Did not speak spontaneously, although would groan and moan at night. It was difficult to understand what she spoke, as speech was quite indistinct and patient would not cooperate. Her physical activity was that of restlessness and gestures. Her mood appeared to be unstable; she would occasionally cry, but as a whole appeared somewhat depressed. It was impossible to get her cooperation for any intellectual tests; she seemed to be somewhat confused, although it was really difficult to get her to answer to any of the usual questions given for memory and orientation tests.

The impression gained was that the patient was suffering from an organic brain lesion, which affected chiefly the left hemisphere, causing elevation of the left disc, and compromising the opposite pyramidal tract, giving her a right hemiplegia and a mental picture resulting from this organic disease.

Clinical Course.—Patient continued to show an increasing lack of attention, drowsiness, irritability, and apparent retention defect. She would sleep very little during the night and would moan and groan at times. Efforts to get her cooperation or to elicit any definite complaints were usually fruitless. When asked if she had any headache she would occasionally point to her forehead, but most of the time she would answer "No." She never spoke spontaneously. She would obey commands very slowly; when asked to protrude her tongue she would do so after an interval of about 30 to 60 seconds, and when asked to hold her eyes fixed in one particular place she would do so after an interval of one to two minutes. She would occasionally grasp the hands of the nurse or examiner and hold them tightly for a few minutes. Her general mood seemed to be rather that of depression and anxiety. When visited by her brother she would show her emotional reaction by tears. Her mood appearance was that of apparent apathy. She never appeared to express any delusions or hallucinations. At one time it was possible to get the patient to name correctly the day of the week, time of the season and the year. She seemed to know that she was in a hospital. She readily identified the examiner as a doctor and the nurse as such. She could never give any account of the onset of her trouble. At one time it was possible to get her to remember the examiner's name, but this was only for a few minutes.

An eye examination on March 15, 1921, by the attending ophthalmologist stated: "Eye examination: Dilated pupil, optic neuritis of right disc; choked disc of left."

About March 30, 1921, the patient began to show considerable improvement; she slept fairly well during the night; she did not groan as much as she had previously; she appeared stronger, pulse was better. She was able to retain liquid food, and without regurgitation. She seemed to take more interest in her surroundings, answering a few questions. She complained of pain on moving the right side of the body. She showed irregular and unequal sluggishly reacting pupils; weakness of the left external rectus muscle. There was a definite weakness of the right side of the face, and all movements on the right side of the face were impaired; there was a drawing of the left angle of the mouth, and the tongue protruded to the right. There was a definite right hemiplegia of the flexor type; the reflexes showed the following: Corneal and conjunctival present and equal on both sides; abdominals, right 2 plus, left 2 plus; biceps, right 2 plus, left 1 plus; triceps, right 2 plus, left 1 plus; wrists, right 2 plus, left 1 plus; knee jerks, right 1 plus (?), left 3 plus; Achilles, right 2 plus, left 3 plus. There was a right Babinski. She would begin to cry whenever her right extremities were moved.

On April 5, 1921, she suddenly began to get markedly lethargic; would answer questions only after great difficulty, and then in a very unintelligible manner. She became very restless; kept groaning at night and kept all the other patients awake. She took food very well and did not regurgitate. She had incontinence of urine and feces. She showed a bilateral Kernig. Pulse was 80, respirations 20, temperature 98.4. A spinal fluid examination showed the following: Pressure, 2 plus; globulin, 4 plus; cells, 45; colloidal gold curve, 0122322100; Wassermann, negative.

Eye grounds examined April 6, 1921, by attending ophthalmologist, who said: "Marked choked discs of both sides; unable to determine if hemianopsia is present or not; from the fundus picture one would suspect a brain tumor. When I saw this patient on March 15 she had an optic neuritis in the right eye, but at the present time she has a marked choked disc. The fundus picture also in the left eye is much more marked than when I saw her before."

On April 8 the patient developed a ptosis of the left lid. Blood pressure was 115/85. At this time there was choking of the right disc to 3 D and left to 2 D. There were hemorrhagic areas in both discs, more marked in the right, with overflowing of the veins of both discs, but more marked in the right.

X-ray examination on April 12 showed the following: "The skull is of moderate size. The bones of the vault are of moderate thickness. The groove of the meningeal vessels are slightly deepened. The sella turcica is of moderate size, concave. No evidences of intracranial pressure."

On April 10 she became very restless and resistive, took no nourishment and kept moaning and groaning during the night and screaming during the daytime. On the 11th she became much quieter. On the 12th she hardly made any noise at all, and it was difficult to arouse her from her apparent sleep. When she was aroused, it was found she could swallow fluids only. She became very weak during that same evening, when she sank into a state of stupor. Spinal fluid examination done at this time showed 3 plus pressure, 10 cells, 1 plus globulin, and colloidal gold curve 0000000000. On April 13 she developed pulmonary edema and died on the following day.

CASE III.—A. B., admitted to the psychopathic service of Bellevue Hospital on January 25, 1921.

Personal History.—Female, single, age 46 years. Swedish, twenty-five years in the United States. Laundress of moderate habits. No known previous illness.

Family History.—Father died of pulmonary tuberculosis at 58; mother living at 77 and in good health; two brothers and five sisters in good health.

Present Illness.—Informant, a Bellevue Hospital nurse, who had known patient for a number of years, stated that one month ago the patient suddenly became confused, dizzy, laughed and cried a good deal and could not speak clearly. The people living in the same house complained of her actions and said that she was mentally upset. One week before admission she became very noisy at night, would vomit at the least exertion, became very irritable and impulsive, would fall on all fours when in her room, and had to be looked after like a child. The day prior to admission to hospital she had a spell of confusion, fell on the floor, and, when she regained her senses, it was found that she could not move the left side of her body.

At Bellevue, patient was in bed and showed a greasy appearance of face, emotionless expression, and, when walking, she dragged her left foot in a manner suggesting a hemiplegic condition. Coordination tests were carried out very well in the right extremities but very awkwardly in the left. There was no real adiadochocinesia, no dysmetria. Skilled acts were performed well in the right hand and awkwardly with the left. There was no aphasia and no dyspraxia. Speech was somewhat drawling.

Reflexes showed the following: Biceps, right 2 plus, left 3 plus; triceps, right 2 plus, left 3 plus; radial, right 1 plus, left 2 plus; ulnar, right 1 plus, left 2 plus; patellar, right 2 plus, left 3 plus; Achilles, right 2 plus, left 4 plus; Babinski, right absent, left present; ankle clonus, right absent, left exhaustible; abdominal, right 2 plus, left 1 plus. There were no abnormal involuntary movements noted.

The muscle strength was definitely increased in the left extremity. General sensory examination was not satisfactorily carried out as the patient would object

to the application of the different stimuli, but there was no definite sensory disturbance noted.

Cranial nerves showed the following: Pupils were unequal, the right bigger than the left, and irregular, and reacted sluggishly both to light and accommodation. Visual acuity was very difficult to test on account of lack of cooperation. Right disc was raised to 1 D and showed distention of the veins. Left disc was normal. Both eyes appeared directed straight forward and both eyes were moved rather slowly in looking in any direction. There was no diplopia. There was no other abnormality noted in any other cranial nerve.

Heart showed normal outline; no murmurs and was regular in course and rhythms; lung showed normal resonance, breath, and voice sounds. Pulse was of low tension, 80; respiration 18, temperature 98.6. Blood pressure, 120/75. Blood, Wassermann plus minus; spinal fluid, Wassermann negative; cells, 18; 2 plus, globulin.

X-ray examination of the skull showed that the cranial vault was normal; cranial cavity was not enlarged. The sella turcica was small but well formed. There was no evidence of increased intracranial pressure.

Mentally the patient was dull, disagreeable, would interfere with the other patients, and was quite untidy in her personal appearance. Her speech was incoherent and at times rambling. Her general mood was changing; she was impudent at times, then again she would become fairly agreeable. Her emotional reaction was adequate. Her mood appearance was that of tension and irritability. She was unable to give any account of her difficulties. She denied any hallucinations, nor would she express any delusions. She was, however, often seen talking and laughing to herself, but would offer no explanation for her actions. She was confused and was unable to give any correct answers to the usual orientation tests. Her attention was poor and cooperation tests of memory and retention was poor.

The clinical course was characterized by paroxysmal attacks of restlessness, irritability, intense headache and vomiting, and by steadily increased pressure in the right eye grounds, with the occurrence of hemorrhages in the right disc. During these paroxysmal periods she would groan and scream at the top of her voice, and the pain would not be relieved by the ordinary sedatives. These paroxysms would last from three to ten days. On March 3, 1921, she showed unequal, irregular, sluggishly reacting pupils. The right disc showed linear hemorrhage along the course of the blood vessels, beginning near the centre of the disc and extending outward. The disc margin was blurred. The left disc margin was slightly blurred but not so much as the right. No hemorrhage was seen. The opinion was that it was a neuroretinitis of general or systemic origin. The left side of the face moved very slowly and there was a suggestion of a left facial paresis of the central type. Left abdominals could not be elicited. Deep reflexes were more active on the left side of the body than on the right. There was a left Babinski. Vomiting continued without nausea. Patient wet and soiled herself. Mentally she was moderately confused, but complained of intense headache. The diagnosis made at this time was of a neoplasm in the right cerebral hemisphere. She was then transferred to the surgical service for operative interference. When all arrangements for her operation had been made, the patient refused to give her consent. Strangely enough, she began to show great improvement on March 18. She became much quieter, was more amenable to care and to attention, would no longer wet herself, and the headaches were apparently greatly relieved. On March 24 the eye grounds no longer showed any papilledema and the hemorrhagic areas in the right disc had gradually been absorbed. There was still a moderate left hemiplegia with pyramidal tract signs. She continued to improve so that it was possible to discharge her from the hospital on April 8. She then showed left pyramidal tract signs with but slight haziness of the right eye ground.

COMMENT.—In CASE I we have a young boy who showed steadily increasing paralysis of the left side of the body with choked discs, first in the right and later in the left eye, and the symptoms of paralysis eventually spreading to the right side of the body, and in whom there was great difficulty in swallowing. The mental picture strongly presented the type of reaction usually seen in ordinary lethargic cases of epidemic encephalitis, rather than the mental picture associated with a steadily increasing intracranial neoplasm. The serological examinations excluded the possibility of syphilis. He eventually made a favorable recovery from the active period of the disease, and was left with a residual left hemiplegia and abnormal involuntary movements of the left hand, and a mental disorder strongly suggesting the type of reaction which has been described in a former paper.[1] The refusal of the parents to give consent stood in the way of having patient subjected to operative measures.

In CASE II we have a middle aged female who showed evidences at first of a right hemiplegia with choking of the left disc and later a process extending to the right side of the brain giving greater choking in the right than in the left disc, with hemorrhages in both discs and subsequently showing considerable meningeal irritation, in whom the serological examinations excluded the probability of a syphilitic process; and whose mental picture was that of steadily increasing drowsiness, lack of attention, inability to answer questions properly, and who finally died.

The last case, from the very beginning, showed evidences of a growth in the right cerebral hemisphere, which gave periodic attacks of intense headache, vomiting and choking of the right disc, and a left hemiplegia. In this patient the mental picture was characterized by marked irritability and confusion, and serological examinations strongly pointed against the possibility of syphilis. The general course of the disease did not suggest the possibility of encephalitis, as everyone seemed to be convinced that the reliability of the symptoms pointed to a clear-cut neoplasm. She refused to give consent to the operation, but made a complete recovery. She was finally discharged as an encephalitis lethargica case.

These cases presented many unusual features. In the first place, a perusal of the literature of all the reported cases leads one to believe that the optic discs are not, as a rule, involved in the disease process; and choked disc, as such, is indeed an unusual occurrence. Thus Bramwell,[2] in reporting a group of 57 cases of definite encephalitis lethargica, says, "Changes in the fundi oculi are seldom met with, although in several cases I have seen engorgement of the veins." Barker[3] and his coworkers in their extensive study say, "Outspoken choked disc was not present in any of the cases of my series and judging from the reports, is not met with, although a slight optic neuritis may occur." In reading through the work of Tilney and Howe[4] one is left with the impression that the changes in the optic discs is not the usual rule. There are, however, isolated cases reported in the literature of choked discs and neuritis. Thus, Urbantschitsch reported a case in which there was intermittant bilateral choking of disc with a left sided abducent paralysis in a boy of fifteen years. The periods of choked discs and abducent paralysis lasted 13 days, 19 days, and 6 months, respectively, the discs clearing up in the interval, and the patient finally

making a complete recovery. Symmonds[6] reported four cases of epidemic encephalitis in which optic neuritis was associated with widespread lesions of the nervous system.

Regarding the explanation for the choked disc, one need mention only the usual theories offered for such phenomena, namely the Leber toxic theory, the Schmidt-Rimpler mechanical theory, and, in addition, the anatomical explanation lately offered by Tilney,[7] who describes a canal which extends laterally over the chiasm and optic nerves from the cephalic extremity of the third ventricle for a distance varying in different subjects. Its lining is formed by ependymal extension of the third ventricle. This canal he calls the supra-optic canal. Any interference which might produce distension of this supra-optic canal or affect its drainage, might cause pressure upon the optic nerves and chiasm obstructing the drainage canal of these structures and causing choked discs. A small amount of exudate might well block these channels; furthermore, if properly localized, it might cause some internal hydrocephalus with resulting choked disc. The hemorrhages could be best explained by the distension of the veins and their subsequent ruptures. The headache and vomiting could best be explained by the increased intracranial pressure. The paralytic phenomena in this disease have been fully described by other observers, and need no further comment.

Regarding the treatment of these cases, we have nothing to offer, except the ordinary symptomatic measures. Operative interference is hardly abvisable. Buzzard[8] discusses a group of four cases in which there was considerable difficulty in the diagnosis, especially in regard to the possible presence of a cerebral tumor, cerebral abscess or cerebral hemorrhage, and in those cases in which operative measures were instituted, death invariably resulted.

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Remarkable Recovery from Sarcoma.—A subject had been operated on for sarcoma of the face twenty-two years before he noticed a recurrence. The latter, whether a bona fide recurrence or not, was seated in the superior maxillary bone and was not operable. It was treated with four hours of the most powerful *x*-rays, and in thirty-three weeks but a trace remained. An abundant fetid suppuration had, however, been established, probably in connection with fistula formation, and was treated by large doses of an autovaccine. The lack of definite bounds and the osseous adhesions made operation out of the question.—*Le Progrès Médical.*

A NEW DUODENAL TUBE.

By L. WINFIELD KOHN, M.D.,
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In a recent article,[1] the author made a preliminary report of a new duodenal tube devised for the purpose of making more detailed studies of the upper portion of the small intestine and the biliary tract. Since that time additional experiments have been performed with this tube but to say more than that the work is encouraging would not be warranted at the present time. However, numerous inquiries regarding this tube and a desire to satisfy those interested, impels the publication of this article with the illustrations and description of the instrument and its modifications.

As brought out in a previous paper, the tube, it is hoped, will serve many purposes:

1. Through the medium of the air-bag arrangement, we are enabled to create a temporary blockade either in some portion of the duodenum or jejunum, depending upon the discretion of the investigator. If the duodenum alone is to be studied, the distance of the tubing between the air-bag blockade and the perforated olive is comparatively short, whereas if jejunal studies are desired the tubing between the air-bag blockade and the perforated olive must be longer. This instrument can be made adjustable to

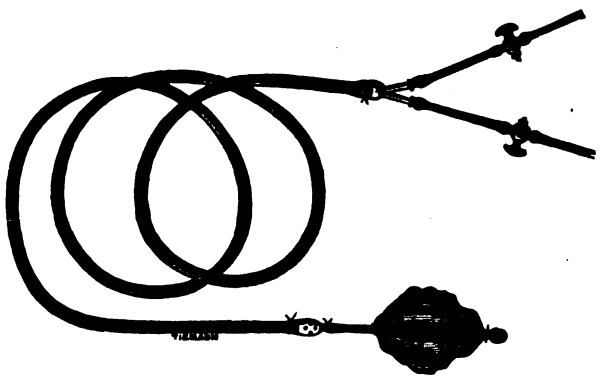

Fig. 1.

the occasion. We believe that fluoroscopy and roentgenography, through the medium of this device, may outline more adequately the duodenum or jejunum. As a result, we may be able to differentiate more definitely gastric, duodenal, jejunal, biliary, pancreatic and colonic diseases.

2. We may attempt to demonstrate or outline the gall bladder and biliary ducts by filling these tracts with a shadow-producing substance. Up to the present time, a demonstration of this kind has been more or less accidental. Beall and Jagoda,[2] and more recently Tenney and Patterson[3] demonstrated the bile ducts in roentgenograms. Why not make a purposive effort to fill these organs? This is just what we are about to attempt and preparations in this direction are now being made.

3. With the principle of blockade of the intestine in mind, we may be able to isolate more definitely the uppermost portion of the intestine and control it in such a manner as to enable us to collect in more accurate quantity and quality the biliary material from the liver and bile tracts, as well as the digestive fluids from the duodenum and pancreas. Thus, diagnosis and treatment of these parts may become more definitely improved.

Since the author's first paper was published, Van Nuys[4] also has made a preliminary report of a tube for the purpose of obtaining the results we have aimed at by our instrument.

We have devised, in all, three different types of

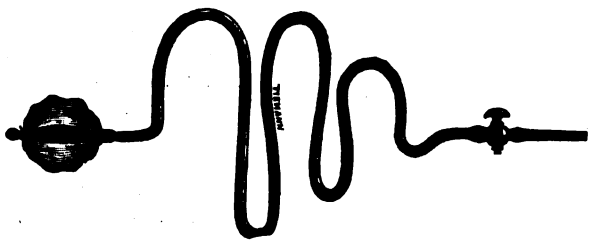

FIG. 2.

tube. The instrument being employed at present is No. 1 of the illustrations. These instruments consist of hard rubber stop cocks, a silver Y, rubber tubing, size 16 or 17 French, perforated olive body with a double channel, inner tubing of 12 French size, olive weight brass tip, 23 French size, thin tissue or glove rubber (for air-bag), with fine silk chiffon surrounding it as a retentive or supportive agent. The rubber air-bag, when it is blown up, should be circular or as near circular in form as possible. The rubber connections are securely tied with waxed silk thread. The instrument must be practically airtight or else the air-bag will quickly collapse. In instrument No. 1, one avenue communicates with the air bag which is filled up with air and serves as a blockade, whereas the other avenue serves to convey the shadow-producing medium to the duodenum or upper intestine above the blockade. Instrument No. 2, after it has entered the duodenum and while the patient is under the fluoroscope, may be blown up with air and as soon as the blockade has been created, the patient is instructed to drink the shadow-producing medium. Small portions of this medium may then be seen to

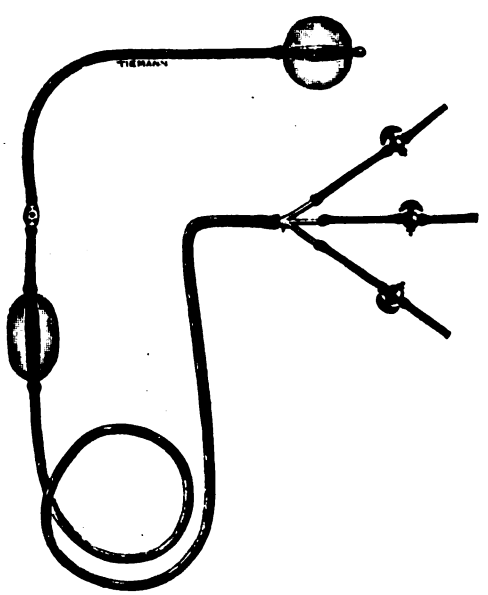

FIG. 3.

enter the duodenum and accumulate above the blockade. Up to the present, work with this device has been mainly speculative and the same may be said of instrument No. 3, which has a double blockade arrangement for the purpose of isolating special portions of the alimentary tract, particularly separating the duodenum from the stomach.

In conclusion, the author desires to express his appreciation of the work done by others during the past in the direction of creating devices for the purpose under consideration. Every instrument or idea of the past serves to create new ideas and instruments for the present. It is to be hoped that our efforts may be fruit bearing.

The instruments here described may be secured from Geo. Tiemann & Co. of 107 East Twenty-eighth Street, New York City.

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427 PARK AVENUE.

THE DIAZO REACTION WITH A NOTE UPON THE INCIDENCE OF POSITIVE REACTIONS IN A SERIES OF 2017 TESTS.*

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THE history of medicine moves in cycles and this is often well illustrated, as any observer of the literature can testify, by the ebb and flow in popularity of the various procedures introduced from time to time as methods of value in the accumulation of data leading to that "consummation devoutly to be wished for"—a diagnosis.

A striking example of this inconstancy in popularity is seen in the so-called diazo reaction in the urine, originated by Ehrlich in 1883. The simplicity of the technique, resulting in its widespread application, soon gave rise to a multiplicity of reports many of which are at wide variance, so that one searching for information as to its possible value as a part of a routine uranalysis, is at once confronted, on the one hand, with numerous reports in which the test is widely extolled as a valuable procedure, and, on the other hand, equally numerous observations as a result of which it is as vehemently decried as worthless and misleading.

In a cursory review of available literature one is at once struck by the fact that there are many absolutely contradictory statements with regard to the occurrence of the reaction and also that there are many variations in the technique used by different reporters, a fact which may be of importance as tending to explain some of the varying results. Thus the reaction is said to have been positive—or negative—in measles, typhoid fever, tuberculosis, trichinosis, gonnorheal septicemia, meningococcic infections, acute rheumatic fevers, and after the ingestion of naphthalin, chrysarobin, opium, di-

*From the Laboratories of the Pittsburgh Hospital.

phenol derivatives; tannic acid, gallic acid, and iodine compounds interfere with the production of the reaction, probably because of the action of the drugs on the reagents in the test tube rather than because of any effect within the body.

No adequate explanation of the mechanism of the reaction has ever been advanced. All that is known is that, in positive reactions, there is a chromogen in the urine which, when treated with diazo-benzene-sulphanilic acid and ammonia, will give rise to a red color, the nature of the chromogen being unknown. As the preparation of chemically pure crystalline diazo compounds is a matter of great difficulty, the formation of diazo-benzene-sulphanilic acid is accomplished by the action of nascent nitrous acid on sulphanilic acid just prior to the test.

The two conditions in which the occurrence of the reaction is more or less unanimously granted are tuberculosis and typhoid fever. Its exact significance in the latter condition is a matter of doubt; in tuberculosis by many observers it is held to be indicative of a very extensive process, a rapid progression, and of sufficient gravity to warrant a grave prognosis. In typhoid fever the reaction may be looked for from the second to the sixth day, lasting until the fifteenth or twentieth day when the intensity gradually fades until the reaction disappears entirely. It is prone to reappear with fresh rises of temperature but only when these are due to a relapse, thus serving to differentiate between relapses and complications in which it does not appear. In paratyphoid fever the reaction is inconstant.

According to Todd[1] its early disappearance in typhoid fever is a favorable sign while Green,[2] one of the most ardent advocates of the test, believes that, though a positive diazo reaction does not of necessity indicate typhoid fever, a failure to obtain the reaction during the proper stage of the disease renders the diagnosis dubious, while a persistent failure to obtain it at any time absolutely negatives the diagnosis.

According to the same observer, when the test is made according to his modification of the technique, the reaction will be found negative in malaria, pneumonia, and early miliary tuberculosis, and positive in many of the acute exanthemata though transient.

Because of the varying statements encountered and as an aid in determining whether or not the reaction should be included as a part of the routine uranalyses of these laboratories, the test was applied to 2,017 consecutive urines, the purpose of the investigation being to determine the incidence of positive reactions rather than to gather statistical data concerning the value of the test as a diagnostic or prognostic aid. Obviously if a high percentage of positive reactions was obtained in routine specimens from the medical, surgical, and gynecological wards of a general hospital, the importance of the test was automatically decreased; conversely the occurrence of positive reactions in limited numbers or in a restricted group of pathological conditions would serve as an indication of the utility of the test in general.

Owing to the unselected character of the cases admitted during the period of investigation it was not possible, nor was it attempted, to secure a large series of any one disease and the results are therefore reported without comment.

The technique used was that advocated by Greene, and follows:

Reagent: Solution A:
Acid hydrochloric concentrated..... 50 c.c.
Water distilled .....1000 c.c.
Acid sulphanilic C.P. q. s. *to saturation.*
Solution B:
Sodium nitrite .....0.5 gm.
Water distilled .....100 c.c.

(N. B. The sodium nitrate solution was freshly made each week and kept in a dark colored bottle).

The Test: To 100 parts of solution A add one part of solution B by volume. This solution constituted the reagent used in the test. Equal parts of this solution and of clear, filtered, fresh, acid urine were mixed in a test tube. After mixing, 5 cc of concentrated ammonium hydroxide solution were stratified upon the mixture. The reaction was looked upon as positive only when the following criteria were achieved: (*a*) The color produced must be a distinct *red*; (*b*) when shaken the foam must be pink; and (*c*) when diluted with a large quantity of water in a porcelain evaporating dish the pink color must be plainly evident.

Performed in this manner in 2,017 tests a positive reaction occurred 28 times, an incidence of 1.4 per cent.

The diagnosis in the cases giving positive diazo reactions follows:

Pneumonia, lobar	6	Following neosalvarsan injections	2
Typhoid fever	5	Chronic nephritis	1
Tuberculosis (sputum positive)	2	Pelvic peritonitis	1
Tuberculosis suspected but not proved	3	Diabetes	1
Abortion	2	Empyema	1
Acute rheumatic endocarditis	1	"Blood stream infection"	1
		Not made	2

With this technique the reaction was positive in every case of pneumonia tested and was constantly found positive at some time or another in every case of typhoid fever. Both of the known cases of tuberculosis were actively progressing and in the suspects the history and clinical picture were very suggestive although a positive sputum was not obtained during the period of examination reported. The occurrence of a positive reaction following the injection of neosalvarsan is of some interest though without adequate explanation.

The result of the series suffices to indicate that with the technique used the reaction certainly does not occur promiscuously.

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"Plaut's Angina."—Before the World War the Teuton spoke of the "Plaut-Vincent angina." Recently a writer in the *Medizinische Klinik* terms this affection merely "Plaut's angina." We venture the statement that not many American readers would know offhand what "Plaut's angina" means.—*Schweizerische medizinische Wochenschrift.*

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

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See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, March 25, 1922.

SUGGESTED REMEDIES FOR CERTAIN DEFECTS IN MEDICAL ORGANIZATION AND SERVICE.

SUGGESTIONS for the modification of medical practice for the purpose of giving still greater emphasis to the prevention of disease, and which at the same time, might solve some of the pressing problems confronting the profession, are commended to the consideration of medical organizations and physicians in an article by Dr. Louis I. Harris published in the *Monthly Bulletin* of the Department of Health of New York City. Dr. Harris points out that we are compelled to recognize, dislike it as we may, that new social demands are being made upon the medical profession throughout the world. To ignore these demands and merely to disclaim and protest against them is to challenge various lay groups to take entirely into their own hands the reorganization and the control of medical service.

The plan suggested by Dr. Harris would include the restoration of the family physician to the state which he previously occupied, presupposing that he must equip himself with wide knowledge, study, and skill, to assume the general direction of the treatment of patients and responsibility for securing the help of specialists when needed. Dr. Harris comments on the helpless and pathetic attitude of the general practitioner who seems to forget that, if a new method finally receives scientific approval, if it is a method which does not require unusual technique or equipment, he, like his confrère, the specialist, may acquire competence in the new procedure. Believing that any satisfactory reorganization of medical service must come from within the profession and not from without, Dr. Harris bases his plan on the fact that what an individual may not do without incurring reproach and ostracism a society as an organization can do with propriety. For example, a county or well-organized district medical association could establish itself as the neighborhood medical service agency for its district. It could select a committee to prepare a form of circular written in forceful and clear style, to be distributed, posted, and otherwise brought to the attention of the patients of each of the medical members of the association that it is the collective judgment and counsel of the association that all persons should submit to a periodic health examination for their protection and benefit. Such a campaign of publicity would eventually mean that every physician would be carrying on at a reasonable fee a large life extension service. In the same way the residents of a community could be warned of a threatened typhoid fever epidemic and advised to avail themselves of antityphoid inoculation, or a campaign could be carried on calling attention to the need of a Schick test. The examination of food-handlers and many other forms of public service attempted by tuberculosis clinics, venereal disease clinics, cardiac clinics, etc., could revert to the private physician. In this way a new relationship would be established between the general practitioner and his patients. The doctor would not be a figure whose presence always suggests tragedy, and the conflict between life and death. He would become the advisor and counsellor of his patients in the fullest sense of the term. If this plan were adopted it would be the business of the County Society to see that members who pledged themselves to preventive medical work would employ the most approved methods and conform to high standards in their medical work.

Another fact emphasized by Dr. Harris is that physicians, through their county medical societies, must take over the control of philanthropic organizations doing medical work and exercise an aggressive unselfish censorship upon those which threaten the public welfare, or which are unnecessary, or which add to the general confusion. These things can be done, if medical men, under strong and wise leadership, cooperate not only in a business spirit, but on a fraternal basis hitherto undeveloped. If such a spirit could be developed the medical profession might inaugurate an economical system of practice whose benefits might be enjoyed by the poor and those of moderate means, which might enable it to forestall Health Insurance or some other system of nationalization of medical practice.

In closing, Dr. Harris says: "It is to be hoped that this communication will cause the members of the medical profession to make a searching inquiry into the weaknesses, the pettiness, and the lack of objective and leadership, which characterizes the conduct of our medical and public health societies, and that they will adopt vigorous and drastic measures for the correction of these things, to the end that these societies may become the instruments of cooperative, well-organized effort to correct the defects of medical organization and service, and to rout and banish the small politicians who divert such societies from their higher duties to the public and to their own membership." Even though one may not endorse Dr. Harris' critical comments in their entirety, his plan is well worthy of thoughtful consideration and if it did not solve all knotty problems confronting the profession it would at least do away with the antagonism sometimes in evidence between private practitioners and public health organizations, enlarge the scope of preventive medicine, and be a step toward restoring the general practitioner to a place in the sun.

RADIUS CURVUS.

ADIUS curvus is more frequently unilateral than lateral and is an affection of adolescence. It much more common among females than males. all the numerous theories which have been nitted for explaining its pathogenesis, late kets is the only one worth consideration. There e several varieties of this deformity, according whether the degree or the direction of incurva- on is considered. The lower third of the radius alone deformed in some cases, in others the per two thirds of the bone is the site of the formity, while the concavity may be anterior d external, or posterior and internal. The symp- ms of radius curvus are a deformity of the iaphysis of the radius with perfect integrity of e ulna excepting at its epiphysis, which may be pertrophied, thus changing the direction of the rticular surface of the radius; an ulna-pyramidal islocation, but the connection of the radius with e semi-lunar and pyramidal bones is always reserved; hyperextension of the hand; limited ovement of flexion or extension, according to the irection of the incurvation; intact ligaments; no hanges in the muscles or of the sensibility, and metimes shortening and decrease in size of the rearm. The diagnosis is made with radiography. he condition is to be differentiated principally rom Madelung's subdislocation, which in the ma- rity of cases has the same pathogenesis, but radius curvus the lesion is in the diaphysis, hile in the process described by Madelung it is ated in either the bones of the carpus or the gaments. It has the same subjective symptoms, ut the objective symptoms are entirely different; here is unquestionably deformity of the wrist nd dislocation of the ulna, but even in the most centuated cases the most that will be noted is n incurvation of the styloid apophysis of the adius. Finally, in certain cases there is dislocation of the ulna-pyramidal joint as well as the ediocarpal, and the radius is absolutely intact.

The evolution varies with each case; in some progresses regularly for several years, in others attains a rather advanced degree in a year or ven in a few months. As in the case of genu algum, this process may present an acute or a hronic form and several phases in the evolution an be made out. In the first place, the pain eases when the limb is at rest; in the second, he deformity appears, but disappears on resting, hile in the third the pain will have ceased, but unctional difficulties arise; in some cases, however, kind of accommodation occurs which allows the unctions of the limb to continue; in the fourth hase of the process the deformity is evident and ttains such a degree that it becomes a real in- rmity. But such cases are rare, as most fre- uently the deformity stops before having reached uch an advanced degree.

The prognosis is good if the lesion does not go eyond the first phase, but it is generally rather erious because the patient, being deceived by the temporary character of the pain, at the onset does not usually consult his physician until the deformity has become established. This is all the more unfortunate because the process is more prone to arise in young girls and results finally in great disturbance in the use of the hand, preventing the execution of daily work. Therefore, the gravity of the lesion differs according to the time in the evolution when the patient is first seen, but need be taken into consideration only from the time that the carpus has become involved, preventing movements of the hand and wrist. When the movements are still relatively good, the treatment by massage and electricity will usually be sufficient, but when the second phase is reached, the pain having given place to functional disturbances, forced correction of the limb should be attempted by the use of a plaster cast. If this treatment is insufficient, the only procedure of any value will be osteotomy.

SLEEPING SICKNESS AND SYPHILIS.

THERE is a certain amount of similarity between sleeping sickness and syphilis, although there is not enough evidence to justify the theory of Schaudinn that there is a close biological relationship between trypanosomes and spirochetes. It may be pointed out, however, that there are some suggestive analogies between sleeping sickness and syphilis. For example, each has a primary and secondary phase, the former in which the disease is mainly an affection of the blood, responding to treatment, while the latter, in which the parasite has attacked the central nervous system, is recalcitrant, in the case of sleeping sickness entirely so. In the Bulletin of the Alfonso National Institute of Hygiene, several years ago, was an article on this subject by Dr. Edward Reichenow describing the parallelism between sleeping sickness and cerebrospinal syphilis. In this article attention was drawn to the fact that the non-success of atoxyl in one and of salvarsan in the other infection was because the parasite multiplied in the cerebrospinal fluid and that the drug injected did not penetrate the meninges. Of course, intraspinal injection has been suggested and tried, but with no success. F. S. Arnold, writing in the *Tropical Diseases Bulletin* for February, 1922, notes that in this connection the observations of Tuszewski, made in 1914, are significant. He found that in animals injected intraspinally with trypan blue, the coloring matter spread in the cerebrospinal fluid up to the base of the brain and as far as the frontal lobe, tinging the mininges deeply. It did not, however, spread to the convexity of the brain, nor to the ventricles or their fluid. Reichenow suggested the use of drugs which have the power of penetrating the meninges and so reaching the central nervous system. He had himself experimented with alcohol and urotropin and gave a brief résumé of the experiments with the latter drug. The patients, in all of whom the existence of trypanosomes in the cerebrospinal

fluid has been proved, were given 6 gm. of the remedy at intervals of two weeks until 48 gr. had been given. The effect on lymphocytosis in the cerebrospinal fluid was in all the cases, four in number, very marked, the fluid in one case being normal in that respect at the expiration of the treatment. This patient, who, in spite of the presence of parasites in the cerebrospinal fluid, was free from nervous symptoms, remained so after treatment. In the other three, in whom the disease was clinically very advanced, with ataxia, somnolence, and psychic defects, definite improvement was observed in one only. Reichenow considered that his results should encourage to a further and more extended trial of the drug in cases in which no grave damage had yet been done to the nervous tissue.

There assuredly is a parallelism between sleeping sickness and cerebrospinal syphilis, but there is lacking evidence as to an intimate biological relationship between trypanosomes and spirochetes. The poison of both infections profoundly affects the central nervous system, but it is impossible to treat sleeping sickness with any measure of success, while syphilis is amenable to treatment to some extent, although both diseases, after they have reached the stage in which the central nervous system is attacked, are as yet incurable. Both are progressive, and the only favorable remark that can be made is that, while the progress of sleeping sickness is made inexorably without any lagging, the advance of syphilis may be stayed by proper treatment.

Pulmonary Complications of Influenza in Pandemic Times and During the Grippe of 1921-2.

Papers were read on these subjects at the Academy of Medicine, Paris, during January last (*Le Bulletin Médical*, February 1-4, 1922, xxxvi, 6). While grippe pneumonia has become a very trite theme it possesses perennial interest. In 1918 the presence of congestion, edema, and hemorrhage was a feature in the pulmonary lesions. According to Letulle, lobar pneumonia is practically devoid of any element of congestion despite the widely held idea that congestion of the lungs stops short of and passes into it. Lobar pneumonia is hardly more than an intra-alveolar clotting which follows the pouring out of a fibrinous exudate. In influenza this fibrinous alveolitis is something which most decidedly does not take place. Instead we see intense vascular congestion, intraparenchymatous hemorrhage, intraalveolar serous exudate, epithelial desquamation, and leucocytic diapedesis. The latter, being usually intense, leads to the formation of multiple abscesses which may cause extensive parenchymatous destruction. Naturally influenza-pneumonia is diffuse. In the present seasonal influenza several prominent practitioners had seen no clean-cut pneumonia. What was seen was a diffuse generalized bronchitis with pleuropneumonia of the sort which causes posterior percussion dulness, bilateral, extensive, and silent. Puncture of the pleura is positive. The sputum is non-pneumonic, abundant, mucopurulent, suggestive of edema of the lungs, but nonalbuminous. There has been no hemoptysis. Recovery is the rule and is preceded by lysis. The pneumococcus has especially been present; Pfeiffer's bacillus in a less degree. There were a few positive blood tests for the pneumococcus.

The Drama as an Instrument in Medical Education.

In olden times poetry was used in teaching medicine and there was academic recognition of its utility. Dr. Æmilius Macer sang about the virtues of herbs, Dr. Ægidius sang about the pulse and heart and urine; Dr. Carolus Spon described the muscles of the body in lyrical measures, and Fracastorio sang of syphilis in classical Latin verse. This use of poetry had mnemonic rather than esthetic value, though sometimes the writers touched the higher notes. The drama, however, has not been used for purposes of technical medical instruction. In the eighteenth and early nineteenth centuries it was the fashion sometimes to describe diseases and treatment in the form of "conversations." Thus in "Dialogues About Diseases," Dr. Lobstein, in 1830, presented the doctor and his patient with much theatrical realism. The dramatic form of writing true to experience may sometimes be made an agreeable substitute for the clinical lecture and especially for realistic instruction in the art and methods of practising medicine. The drama is a dynamic, the clinical lecture a static affair, and the world is craving for the dynamic just now. A venture of this kind of medical writing is given elsewhere in this issue under the head of "The Stepfather—A Medical Comedy."

News of the Week.

Smallpox in New York and Connecticut.—Seven cases of smallpox have been reported to the State Department of Health since the first of January of the present year. This refers to the State of New York, outside of New York City, where four additional cases have been reported in the same time. Of the upstate cases, four have occurred in Niagara Falls, one in Norfolk, St. Lawrence County, and two in or near Northport, Suffolk County. There is strong suspicion that the cases in the northern and western parts of the state arose from communities across the Canadian border, where smallpox is said to have been prevalent in a mild form for some time past. There appears to be a suspicious connection between the Long Island cases and the occurrence of smallpox in Connecticut. Smallpox has also appeared in Bethel and Danbury, Connecticut, some 150 cases having been reported from Fairfield County, which includes Danbury, and the health authorities of that State are cooperating actively with the New York State and local health officers to prevent the introduction of the disease into Dutchess, Putnam and Westchester Counties. The New York State Health Department is urging vaccination of the inhabitants in all localities along the Connecticut border. Of the seven cases in other upstate counties six had never been vaccinated, and the seventh was a girl who had not been vaccinated since she was a small child, ten years ago.

Coyotes Spread Rabies.—An outbreak of rabies

s raging in the eastern section of the State of Washington, according to the Department of Agriculture. Reports from field agents indicate a similarity of the epidemic to that of 1915 during which 1,100 persons in five Rocky Mountain States were bitten by rabid animals. Spread of the disease was attributed in the department's reports to infected coyotes. In a number of cases, it was said, these animals have attacked people in their dooryards and in the streets of the smaller towns.

Dogs Quarantined in Twenty-five Connecticut Towns.—Connecticut is threatened with an epidemic of rabies, according to Cattle Commissioner J. M. Whittlesey, and to prevent its development he has extended the dog quarantine to twenty-five towns.

Clinics to Study Juvenile Delinquency.—A scientific study of juvenile delinquency with clinics in each of the 2,391 juvenile courts in the country is planned by the National Committee for Mental Hygiene. Very few of the courts now have facilities for any such study, the committee finds, and even those that are equipped for the work are handicapped by lack of funds. The work will be financed by a gift to the committee from the Commonwealth Fund. The services of psychiatric clinics will be offered by the committee to the juvenile courts, either free or on a cost-sharing basis. Each clinic will be composed of a psychiatrist, a psychologist and a psychiatric worker, and it is hoped that as a result of these clinics the entire problem of handling the maladjusted child for his own good and the good of society will be facilitated. A new organization, to be known as the Prevention of Delinquency Division, has been formed by the committee with Dr. V. V. Anderson in charge. Dr. Thomas W. Salmon, Dr. Arnold Gesell and other well known psychiatrists will assist in the work.

New Psychiatric Clinic in Philadelphia.—To aid in the prevention of mental diseases the department of public health has established a neuropsychiatric clinic at the Philadelphia General Hospital, Thirty-fourth and Pine Streets. The clinic will have a double function—the treatment and observation of patients who are not classed as insane and are discharged from the psychopathic wards of the hospital, and the examination of patients for early manifestations of mental diseases. A "flying clinic" is also being conducted at the Lee Special School, where a complete examination of children is made by staff doctors and nurses weekly.

Dubuque County Medical Society Assumes Care of Poor.—The Dubuque County (Iowa) Medical Society and the County Board of Supervisors have entered into an agreement whereby the medical men of Dubuque County agree to render aid to the indigent poor of the county for a year at the stipulated price of $3,250. The doctors have agreed to each serve the county for a period of ten days—during which times they attend all persons who are county charges free of cost to the individual. This service only applies to the indigent poor. The specialists of the city are allotted specific times when they are subject to call for the care of indigent poor. The money received in payment for this service does not go to the individual physician. A part of it is used by the Society to purchase equipment to make more interesting their monthly meetings, and to pay the expenses of experts who may be brought from a distance to address the society.

Protest Against Sending Fox Hill Patients Out of State.—The American Legion, through State Commander Major William F. Deegan, is protesting against the scattering of tuberculous ex-soldiers at Fox Hills Hospitals to institutions all over the country. The Legion is in agreement with the Government's plan to close Fox Hills Hospital, but thinks the men should be kept inside the State. They are demanding that New York Congressmen and Senators take the matter up at Washington. They complain that, with the closing of Fox Hills, the Government has no hospital for the care of ex-soldiers in this State, except an institution for the insane, still under construction at Kingsbridge. A late report states that the Government is about to contract for the care of 400 patients in Sea View Hospital, Staten Island.

Medical Service by Wireless.—American sea captains have not been slow in availing themselves of the medical wireless advice offered by the U. S. Public Health Service. Hospital No. 70 (Hudson Street, New York) reports the arrival at 10 o'clock at night of a message from the steamship Chester Valley saying that a man on board was suffering from pain in the abdomen, persistent vomiting, and inability to lie down owing to the pain. The officer of the day promptly prescribed treatment; and the next morning the ship wirelessed thanks, saying that the patient was much improved.

Foreign Mails To Be Inspected for Typhus.—The health commissioner of this city, according to the daily papers, has ordered that all mail matter reaching New York from European countries infested with typhus shall be subjected to examination by the Health Department officials. When the ships dock health inspectors will go aboard and inspect the mail. What they expect to find passes one's comprehension, unless the letters contain cooties by way of remembrance.

The Importance of Eye Care.—The Eye Sight Conservation Council of America has recently made public the results of a survey of school children and adults which show alarming conditions. Statistics covering many years show that nine out of every ten persons over 21 usually have imperfect sight. At 31 the proportion is larger. Above 40 it is almost impossible to find a man or woman with perfect sight. It was learned some years ago by the examination of several thousand school children in one of our large cities that 66 per cent. of them had defective vision of such a degree as to warrant the wearing of glasses. Quite recently the examination of more than ten thousand employees in factories and commercial houses showed that 53 per cent. had uncorrected faulty vision, 13 per cent. had defects which were corrected, making a total of 66 per cent. with defective eyes. These two surveys were made under different auspices several years apart. They mean that a very large majority of the public have eyes defective to such a degree as to require glasses to make them happier and more efficient members of society. The Eye Conservation Council of America is organized for the purpose of fixing the attention of the public on the importance of all factors that contribute to the conservation of vision and the relief of ocular defecs.

Dr. Hans Zinsser, formerly in charge of sanitary inspection successively in the First and Second Army Corps, A. E. F., received the Distinguished Service Medal at Governors Island, on March 17, for his successful operation of a plan of military sanitation and control of epidemic disease while serving with the Second Army Corps.

Dr. H. W. Hartman of Keyport, N. J., has been appointed county physician. His appointment took effect on March 1.

Dr. R. MacMurran Shepler of Carlisle, Pa., has been appointed physician to the Cumberland County Home and Hospital.

Dr. M. L. Werner has been appointed health officer of Red Wing, Minn.

Dr. J. E. Hull of Pond Creek has been appointed health officer of Grant County, Okla.

Gifts and Bequests.—The will of James H. Ottley bequeaths $10,000 each to the Nassau Hospital Association, Nassau, L. I., the New York Infirmary for Women and Children, the New York Eye and Ear Infirmary, Knickerbocker Hospital, and New York University for its dispensary.

The Woman's Hospital, New York, is the recipient of a bequest of $15,000 under the will of the late Mrs. Rosina E. Hoyt. Mrs. Hoyt also provided a bequest of $5,000 for her physician, Dr. W. J. Murray.

Opportunities for Service in Venereal Disease Clinics.—The Associated Out-Patient Clinics announces that it has received many applications for assistants in venereal clinics. These positions are for both men and women, graduates and students. In most instances physicians with no special training in venereal disease will be considered. Any physicians who desire an opportunity to learn this specialty, should communicate with Dr. Alec N. Thomson, Secretary of the Section on Venereal Distases of the Out-Patient Clinics, 15 West 43d Street, New York City.

Physical Training in Pennsylvania Schools.—Henry R. Allen of the Bureau of Public Health Education, Department of Public Instruction, Harrisburg, claims that physical training courses in the schools are not producing the results hoped for. He recommends the following changes in physical training methods: That more time be given to physical education in both elementary and secondary schools; that more adequate training be given not only to regular class teachers but also to special physical instructors; that a standard course of study be prescribed; that greater facilities and equipment be provided and that less time be devoted to interscholastic athletics and an effort be made to promote interest in intramural sports.

Public Health Lectures in the Bronx.—Under the auspices of the Bronx County Medical Society, a public symposium on "Tuberculosis—Its Prevention, Signs, and Care," was held in the Concourse Community Council on March 21. This was the first of a series of lectures arranged by a committee of the society with the aim of safeguarding health by instructing the public in the principles of disease prevention. The speakers at the opening meeting were Dr. Henry Schweitzer, Dr. J. B. Cohen, and Dr. Nathan B. Van Etten.

Hospital Notes.—The Board of Managers of the Hospital for Ruptured and Crippled, New York, announce that, owing to the demand for private rooms, they are going to build an addition on the present site of the hospital, 321 East Forty-second Street, for the accommodation of private patients. The estimated cost of the building is $300,000.

The new private pavilion, children's building and auditorium of Mount Sinai Hospital, New York, will be opened to the public at dedication ceremonies to be held April 9. The new structure raises the plant investment of Mount Sinai Hospital to a total of $8,000,000. Last year the hospital cared for 9800 patients and the dispensary for 196,000 patients.

The new addition to the Bethesda Hospital at Hornell, N. Y., erected at a cost of $45,000, is completed and will be open to the public in a few weeks.

The Washington County Memorial Hospital at Bartlesville, Okla., erected as a monument to the soldiers who lost their lives in the World War, has been opened for the reception of patients. The building and site cost the county $200,000.

The Polyclinic Hospital, Harrisburg, Pa., plans to remove to a new location in the upper end of the city where there will be plenty of ground for convalescent patients and ample room for expansion.

The entire second and third floors of the new McCormick Hospital at Moberly, Mo., were recently destroyed by fire.

The Baptist State Hospital, Little Rock, Ark., is ready for the reception of patients. The directors have voted to open the hospital to students of the medical department of the University of Arkansas.

An additional appropriation of $100,000 for immediate building of a forty-room addition to the nurses' quarters, the erection of three sets of double quarters for medical officers and other buildings at the National Military Home, Dayton, Ohio, has been announced.

Ground has been broken for a new hospital at San Jose, Cal., which will cost about $275,000.

The contract has been awarded for the construction of an additional building to State Hospital No. 2 at St. Joseph, Mo. The new building will be known as the Hadley building and will cost $64,000.

The River Drive Hospital, located between Harrisburg and Coxestown, was opened for the reception of patients on March 10.

A city hospital to cost about $45,000 is being erected at Pawhuska, Okla.

Ground has been broken for a new City Hospital for contagious diseases at Dallas, Tex.

The contract for another unit of the American Legion Memorial Sanatorium at Kerrville, Tex., has been awarded. The cost of the new unit will be $25,000.

The new Municipal Hospital at Youngstown, Ohio, is practically completed, but cannot be opened until money is provided for its operation.

El Paso, Tex., will be recommended as the site for the $1,000,000 tuberculosis sanatorium which the Brotherhood of Locomotive Firemen and Enginemen plans to build.

A contract has been signed between the city of San Francisco and Alameda County whereby fifty San Francisco tuberculous patients will be cared for at the Livermore Sanatorium, owned by Alameda County. The contract runs for twenty-five

years. San Francisco will advance Alameda County $100,000 for the construction of an addition to the hospital sufficient to care for fifty patients.

The St. Louis Meeting of the American Medical Association.—The American Medical Association calls attention to the fact that the arrangements of the St. Louis profession for the meeting places for the Session of the A. M. A., which is to be held in their city May 22-26 next, are singularly fortunate and convenient; never has the Association been so well favored in this respect. The district in which the meeting is to take place is at the west edge of the business section of the city, easily accessible from all directions by street car or otherwise and not more than fifteen minutes street car ride from the most distant hotel. The grouping of the meeting places is so compact that should one walk from the Registration Building (Moolah Temple) to the farthest hall it can be done in ten minutes or less; from section to section is a matter of from one to five minutes. The convenience of the location and arrangements of the different halls is more outstanding than in any other city in which the Association has met, and a decided improvement over the accommodations which were had at the meeting in St. Louis, 1910.

The International Otological Congress will hold its tenth meeting in Paris, July 19-22, 1922, under the Presidency of Professor Pierre Sebileau. The Secretary General is Dr. A. Hautant, 28 rue Marbeuf, Paris. Dr. Thomas J. Harris, 104 East 40th Street, New York City, is the Secretary of the American Continuation Committee.

The Pennsylvania, Delaware and New Jersey Section of the American College of Surgeons will hold a meeting in Allentown and Bethlehem, Pa., on April 3 and 4, 1922. Dr. W. L. Estes of Bethlehem will preside at the meetings.

The California State Homeopathic Medical Association will hold its annual meeting at Santa Barbara, May 10, 11 and 12, 1922, under the presidency of Dr. Hovey L. Shepherd of Los Angeles.

Medical Society Elections.—THE NEW YORK ELECTROTHERAPEUTIC SOCIETY, at its annual meeting held March 1, 1922, elected the following officers for the ensuing year: *President*, Dr. Victor C. Pedersen; *Vice-Presidents*, Drs. Harry Eaton Stewart and Sinclair Tousey; *Treasurer*, Dr. J. Willard Travell; *Secretary*, Dr. Richard Kovacs; *Members of the Executive Committee*, Drs. Frederick de Kraft, A. Bern Hirsh, Byron S. Price, and William B. Snow.

Obituary Notes.—Dr. FREDERICK L. JOHNSON of Stanton, N. J., died of pneumonia on March 8, at the age of fifty-seven years. He was graduated from the College of Physicians and Surgeons, Baltimore, in 1889. He was a Fellow of the American Medical Association and a member of the Medical Society of the State of New Jersey.

Dr. ALVIN ELIZUR BARBER of Bethel, Conn., died on March 15, at the age of ninety-one years. He was graduated from the Berkshire Medical College, Pittsfield, Mass., in 1854.

Dr. HARRIS GRAHAM died recently in Beirut, Syria, where he had been connected with the University of Beirut for thirty-two years. Dr. Graham specialized in tropical diseases.

Dr. IDA CLARKE of Youngstown, Ohio, died at Atlantic City on March 9, at the age of sixty-nine years. She was graduated from the Women's Medical College of Pennsylvania, Philadelphia, in 1878, and was a Fellow of the American Medical Association.

Dr. JOSEPH EVAN BRUNSON of Ninety-Six, S. C., a graduate of the Southern Botanical Medical College, Macon, Ga., in 1902, died Feb. 19, at the age of seventy-two years.

Dr. BENNETT BERNARD BROWNE, since 1882 professor of gynecology at the Women's Medical College, Baltimore, Md., and since 1885 professor of gynecology at the Polyclinic and Post-Graduate Medical School, died on March 10, at the age of seventy-nine years. He was graduated from the University of Maryland in 1867.

Dr. ARTHUR J. RICHER of Montreal, a graduate of the University of Bishop College Faculty of Medicine, Quebec, in 1892, died on Feb. 25, at the age of fifty-four years.

Dr. FREDERICK L. JOHNSON of Stanton, N. J., died at his home Feb. 8, of lobar pneumonia, at the age of fifty-seven. He was graduated from the College of Physicians and Surgeons, Baltimore, in 1889, and practised medicine at Stanton for thirty-two years. He was a member of the Hunterdon County Medical Society.

Dr. GEORGE ALEXANDER RAMSEUR of China Grove, N. C., a graduate of Jefferson Medical College, Philadelphia, in 1880, died on March 4, at the age of sixty-five years.

Dr. HENRY D. WELLS, a retired physician of Middleburg, N. Y., died on Feb. 25, at the age of ninety-two years. He was graduated from the Albany Medical College in 1857 and was a Fellow of the American Medical Association.

Dr. JOHN CLINTON SHUMAN of Akron, Ohio, a graduate of Jefferson Medical College, Philadelphia, in 1890, died of apoplexy on March 4, at the age of seventy years.

Dr. WINONA E. LONG of Battle Creek, Mich., a graduate of the University of Arkansas Medical Department, Little Rock, 1909, died on March 11, at the age of thirty-four years.

Dr. ELANNUS R. BIRCH of Denison, Tex., a graduate of the Miami (Ohio) Medical College, in 1879, died on February 28, at the age of seventy-two years.

Dr. WILLIAM S. MAXWELL of Chicago, a graduate of the Cleveland College of Physicians and Surgeons in 1891, died of pneumonia on March 9, at the age of sixty-three years.

Dr. LEWELLYN G. KLEPINGER of Dayton, Ohio, a graduate of the Medical College of Ohio, Cincinnati, in 1909, died on March 11, at the age of fifty-two years. He formerly held the position of county health officer.

Dr. WILLIAM VIRGINIUS BROCKINGTON of Kingstree, S. C., died at his home on March 9, after a brief illness. He was graduated from the University of Georgia Medical Department, Atlanta, Ga., in 1888. He was a Fellow of the American Medical Association, and the local surgeon of the Atlantic Coast Line Railroad Company.

Dr. SAMUEL I. MYERS of Bayonne, N. J., a graduate of the College of Physicians and Surgeons, New York, in 1878, died on March 5, at the age of seventy years.

Dr. JAMES G. SINCLAIR of Chicago, Ill., a graduate of the University of Illinois College of Medicine, in 1888, died of heart disease on March 12, at the age of sixty-seven years.

Dr. JOSEPH LANE HANCOCK of Chicago died of heart disease on March 12, at the age of fifty-eight years. He was graduated from the Northwestern University School of Medicine, Chicago, in 1888. Dr. Hancock was a well known naturalist as well as a physician. He was a member of the Entomological Society of London and was a recognized authority on *Tettigidæ*.

Dr. CLARA M. SWEET, a graduate of the Boston University School of Medicine in 1894, died of apoplexy at her home in Springfield, Mass., on March 14, at the age of sixty-three years.

Dr. W. D. JENNINGS, Sr., a graduate of Emory University School of Medicine, Atlanta, Ga., in 1868, died of pneumonia on February 28.

Dr. GEORGE MACMURPHY died at his home in Ortonville, Minn., on March 11, at the age of seventy years. He was graduated from Bellevue Hospital Medical College in 1878.

Dr. RALPH E. CONGER of China Springs, Tex., a graduate of Tulane University, New Orleans, 1897, died suddenly of heart disease on March 1, at the age of fifty-nine years.

Dr. REGINALD HUBER MEADE of Kansas City, Mo., died suddenly on March 10, at the age of forty-seven years. He was graduated from the Beaumont Hospital Medical College, St. Louis, in 1896. He was a former president of the Kansas City Academy of Medicine, a Fellow of the American College of Surgeons and the American Medical Association, and a member of the Southwest Medical Association. He was attending physician to St. Joseph's, St. Margaret's and St. Luke's Hospitals. Dr. Meade was a veteran of the World War and president of the Medical Officers' Society of the 89th Division.

Dr. FRANCIS FENELON ROWLAND, formerly of Media, Pa., died at Pasadena, Cal., on March 12 at the age of seventy-five years. He was graduated from Jefferson Medical College in 1873.

Dr. KATRINA FREUDENBERGER died at Tamaqua, Pa., on March 9. She was graduated from the Woman's Medical College of Pennsylvania in 1898. She was a member of the Schuylkill County Medical Society, and the Medical Society of the State of Pennsylvania, and a Fellow of the American Medical Association.

Service Bureau.

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Correspondence.

BELATED CENSURE BY A SOCIETY OF ANESTHETISTS.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—If an author in preparing a paper for publication secures statistics from other publications, or by correspondence or personal interviews, and if it subsequently develops that one or more of those from whom he quotes made erroneous statements, can the author himself be properly charged with falsification?

The Facts.—In the MEDICAL RECORD of July 29, 1916, I published an article on nitrous oxide-oxygen as an anesthetic. In that article I reported a considerable number of deaths that had occurred in Columbus, and also referred to large numbers of deaths which had occurred in other cities and which had not been reported. In each instance I gave the name and address of my informant. Among others I quoted from a physician (giving his name, address, and date of statement) who had told me of a fatality of his own, and who had stated that in the hospital where he had had that death they had "seven or eight" deaths from the gas previous to his own. His statement was made to a number of surgeons in Grant Hospital; it was made frankly and without any manifestation of feeling, and we all accepted it as a statement of fact. Soon after the publication of my article, someone connected with the hospital in which these "seven or eight" deaths were said to have occurred, wrote me denying the deaths. I replied at once that the question was simply one of veracity between himself and my informant. I supposed that that ended the matter so far as I was concerned, but I at once wrote to my informant so as to give him an opportunity to change his statement if there had been an error, but in his reply he suggested no change in his figures. If any denial of the deaths ever appeared in the MEDICAL RECORD or elsewhere I failed to see it.

It now appears, however, that at a meeting of an organization which calls itself the "Mid-Western Association of Anesthetists," held in Kansas City, Mo., October 25, 1921, an anesthetist connected with the above hospital, as I am told, denied the occurrence of the deaths, and thereupon a resolution was "unanimously adopted" censuring me for my article, and accusing me of all sorts of falsification and unethical practice. That such action was in contemplation was kept from me, and no opportunity was afforded for defense or explanation. The fact of the censure was promptly telegraphed to Columbus papers, and I presume to others, and appeared "by request" in the *Journal of the A. M. A.*, December 10, 1921, p. 1902, and perhaps in other medical periodicals.

My paper originally secured wide circulation through the columns of one of the leading medical journals of the country, and a considerable number of reprints were sent out. The number sent out was limited, however, because so many surgeons had gone into the war. A few months ago, therefore, in mailing some other reprints the reprints of this article were sent to the profession in Ohio, and to the surgeons and others associated in surgical sciences whose names appear in the special list in

the Directory of the A. M. A. Other copies were sent out in response to requests.

The action of this little association of anesthetists was taken in direct contravention of what the Federal Supreme Court has called "a principle of natural justice," the principle that no man should be condemned without a hearing. Such action may be properly regarded as significant of the desperation of the men who are back of the movement to make high-priced "specialists" out of mediocre physicians, most of whom if left to themselves would be honest and useful members of the profession.

The Cause.—The animus back of the attack is simply this: I was chairman of a committee of three ex-presidents of the Ohio State Medical Society, appointed by the president of the society to investigate the anesthesia problems. At its first meeting the committee decided to send a questionnaire to all hospitals having a capacity of 100 beds or more, as their names appear in the A. M. A. Directory; also to send similar questionnaires to 500 leading surgeons of the country whose names appear in the directory published by the American College of Surgeons. Those questionnaires were most carefully worded so that no inkling could be conveyed to the recipient as to the views of any member of the committee. Replies were received from large numbers of hospitals and surgeons. These replies were turned over to me by the secretary of the State society, and by me forwarded to the Cincinnati member (Dr. E. O. Smith), and by him to the Cleveland member (Dr. W. E. Lower). After considerable correspondence between us, a report was finally unanimously formulated at a full meeting of the committee, and presented to the council of the State society, which ordered the same printed, and extended a vote of thanks to the committee for the thoroughness of its work. The report was as free from bias as the multiplication table. It was practically a résumé of the replies which we had received, and showed that 303 surgeons used straight ether by the open drop method; three used chloroform, and 22 used nitrous oxide.

Our report also took up the matter of the specially trained nurse anesthetist, and gave the numerical preferences of hospitals and surgeons as to her employment. Because the nurse anesthetist was in a sense an innovation the committee thought it instructive to incorporate opinions expressed by different surgeons and hospital superintendents as to their experience with the nurse in regard to efficiency, safety, etc. The committee also found, though that was not incorporated in its report, that various commercial interests connected with the manufacture of anesthetic agents and machines for their administration, were financially backing the anesthetists' association, and furnishing a large part of the money for the carrying on of its propaganda.

The promoters of the "anesthetists'" plans did not like this report; it threatened to block their efforts to secure a monopoly by legislation; *hinc illæ lachrymæ*. Just before the last meeting of the Ohio State Medical Society, and at a time when it was too late for a reply, a circular was sent out by the anesthetists' organization broadcast over the State, viciously attacking me and incidentally the committee and its report. Calling me names and abusing the committee were resorted to merely to distract attention from the demand for their death reports. I have repeatedly challenged one of their leading proponents to point out a single improper feature in the report that we made, but though he has replied promptly to my letters he has not once complied with my request.

My Effort.—I have constantly urged the anesthetists, as a part of their "research" work, to make a report of their fatalities so as to reach if possible some conclusions that would enable us to reduce that death rate; but my efforts have been entirely without avail. Several years ago Teter wrote me that he knew of 26 unreported deaths from nitrous oxide-oxygen; Miller reported 18; Rovsing 13, and Gwathmey from 20 to 40. Other anesthetists have reported to me additional deaths, so that in the aggregate I found an enormous number of unreported deaths from that agent alone. With knowledge of these many unreported deaths, why should one question the statement of the physician from Detroit that he knew of "seven or eight" such fatalities? Indeed, from the action of the Detroit anesthetist previously alluded to, I am the more inclined to think that my informant told the truth. If he was in error why was not that error promptly corrected by those who claimed to have knowledge? If a libelous statement was printed, even though in good faith, why was not attention called to it at once in the journal of its publication? In Ohio the statutory limitation for prosecution for libel, I am told, is one year, and I presume the limit in other States is about the same, but these men allowed more than five years to go by without a word of published protest, and then they come in with the Bœotian argument of calling names.

If the anesthetists are honest truth seekers, why do they not give us promptly and fully their death reports, with full histories and autopsies, so that we may reduce to a minimum that source of danger in connection with our operative work?

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OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, March 1, 1922.

London School of Hygiene.—The Rockefeller Trustees have donated the sum of $2,000,000 for the building and endowment of a British National School of Hygiene. There has been a good deal of speculation as to the eventual site of this school. However, no definite information is available on the point, except that the school will be connected with the University of London. In some quarters it is thought that the Earl of Athlone, brother of Queen Mary, will be invited to become the first chairman of the governors, as the report of his committee really originated the idea. The Earl of Athlone is an enthusiast on public health, and it would be a graceful compliment to America for a member of the Royal Family to be closely associated with the result of this gift.

More Concerning Cancer Research.—Lord Atholstan of Montreal and Sir William Veno have done good to the cause of medical research in

general and cancer research in particular in that their widely advertised gifts have aroused the interest of the public in a question with regard to which in this country they are lamentably ignorant, and consequently somewhat callously indifferent. Also, and this is a point to be considered, the moment is or should be propitious on account of the seemingly useless research work which has been done already in this direction. But this work has not been futile by any means, for the reason that by a process of exclusion it has drawn attention to the paths that should not be followed and has rendered more or less obvious the roads that will lead to the goal. The Imperial Research Fund and the researches in other countries have at least proved that certain paths are blind ones, along which it would be a waste of time and money to attempt to travel further. While the discovery of the origin of malignant disease would undoubtedly simplify matters and expedite the finding out of a cure, yet as mentioned in a previous letter, a cure might be evolved even if the cause of the disease continues to be shrouded in obscurity. Moreover, the specific agent, that is an agent which is specific in its action against the malignant cell, but having no deleterious effect on the normal harmless cells need not be a drug but may be some form of radiation. Both radium and *x*-rays have demonstrated their value in the treatment of some kinds of malignant growths where such growths have been situated in a position favorable to radiation treatment. The powers of radiation have not reached their limit, and it might not be preposterous to suggest that a specific treatment for cancer may be found in these agents. Again, electrical treatment may provide a successful mode of ridding the system of the poisons engendered by the cancerous process. In all events and in every event early diagnosis and vigorous treatment on approved lines should be the slogan. Some forms of cancer may be termed curable at the present time, if the well-equipped radiologist and the skillful surgeon work in unison. But money is required for research and as has been emphasized on several occasions funds are not forthcoming in this country in the manner in which they are lavished in America. Medical research here is starved and it is to the generosity of those responsible for the distribution of the Rockefeller Fund that we are indebted for much aid and to whom we look to further assistance. It is time that science should know no boundaries and that the discovery of a cure for a disease or of a means of promoting health is of benefit to the entire human race.

Mr. Gilbert Chesterton on Eugenics.—Mr. Chesterton is easily one of the most brilliant writers of the day and has the faculty of clothing common sense views in scintillating paradox. In his latest work, "Eugenics and Other Evils," he takes a tilt against the cult of eugenics, which is an old bogey of his. In the preface to the book referred to he says that he had hoped that the eugenic fad was dead, that the fierce flame of war which had burned up so much that was both good and evil had destroyed that also. He has found that such is not the case, that the craze for scientific officialism and strict social organization is as rampant as ever, that the spirit of Prussianism has triumphed in the realms of sociology and politics more decisively than it was defeated in the trenches. The passage of the Feeble-Minded Bill here, seems to show that the eugenists wield a considerable amount of influence as the bill in question is badly conceived and carelessly drawn. However, because this bill is law it does not mean that it is workable. More than one bill which has been placed on our statute book and never repealed is as dead now as Queen Anne, and this is what will happen to the eugenists' bill. Mr. Chesterton explains what the eugenists want in the following words: "They want to be allowed to find out what they want. Not content with the endowment of research, they desire the establishment of research; that is, the making of it a thing compulsory, like education or state insurance; but still it is only research and not discovery. In short, they want a new kind of state church, which shall be an established Church of Doubt, instead of Faith. They have no science of eugenics at all, but they do really mean that if we will give ourselves up to be vivisected they may probably have one some day. I point out that this is a bit thick." There is no doubt that Mr. Chesterton is on solid ground when he inveighs against eugenics being made compulsory or an affair of the State. There are such patent objections against such a course, that argument is superfluous. Who is going to decide as to who is fit to propagate the race and who is not fit? Enough is not known of hereditary diseases or, rather transmission of disease as to make such a plan feasible or reasonable. Only a few diseases are now thought or known to be passed on, or their effects passed on, to the immediate progeny or descendants of diseased persons. There are certainly a limited number of people who should not be allowed to breed, but the idea of building up a perfect race by eugenics is Utopian. The physically superior are by no means the salt of the earth, for in very many instances conspicuous brain power is lodged in a frail human tenement. Further, the question of eugenics is a social question, just as much as it is a health question. Love and affinity enter into it so largely that it must be considered from this point of view. Mr. Chesterton is right in declaiming against any attempt to make the practice of eugenics compulsory, although at the same time it is obvious that persons suffering from certain gross diseases and those afflicted with certain mental affections should be prohibited as far as is possible, for the good of the community, from marrying or from propagating the species.

Foot and Mouth Disease.—It has been more than hinted in some of the lay journals that foot and mouth disease which is now very prevalent in Great Britain is a form of influenza and that furthermore it might be transmitted to human beings. With regard to its pathological significance for human beings Mr. A. K. Cameron, F. R. C. V. S., contributed an article on the subject to the *Lancet* of February 18, last, to which editorial reference was made in the same journal the following week. It is there pointed out that it has been definitely established that the causal

agent is a filter-passing virus, but it is not yet known whether the periodical propagation is due to an increase in its violence, or to reintroduction by means of birds or other carriers, or whether it is maintained, perhaps constantly in the systems of non-susceptible animals other than cattle, which act as reservoirs. There is apparently no evidence that the disease has any relation to other epidemics alleged to be filter passing; nor has it ever been established that any relationship exists between it and the filter passing diseases of man, such as influenza or encephalitis lethargica. There are a few, but a very few diseases, which may be transmitted from animals to man, although the profits in evidence of this statement are by no means always convincing. In any event, in spite of the assertions or rather strong suggestions of lay papers that foot and mouth disease in cattle is a form of influenza and transmissible to man, the evidence in this direction is so extremely slight as to be practically negligible.

Lunatic Asylum Administration.—The question was asked in Parliament of the Minister of Health on February 14 whether, in view of the fact that the committee appointed to consider the administration of the lunatic asylums was predominantly representative of medical superintendents, the inefficiency of whose administration was the matter to be inquired into, he would favorably consider strengthening the committee by the addition of representatives of the general public and of the Asylum Workers' Union. The Minister replied that the committee in question was appointed to consider charges made by Dr. Lomax and not the general question of asylum administration. Neither of the medical members of the committee had ever been associated with an asylum provided by a local authority. It would merely prolong the inquiry to add persons with no previous experience of asylum administration, and as regarded the Asylum Workers' Union, while he regretted their refusal to give evidence, he was unable to regard this as a reason for appointing to the committee a representative of a class directly incriminated by Dr. Lomax's charges. There seems to be a good deal of difference of opinion as to the validity of the charges made by Dr. Lomax some little time ago, against the manner in which these institutions were conducted. It is to be hoped that the committee appointed to investigate the matter, and to which reference was made in a previous letter, will act impartially and report accordingly. If reforms are needed they should be introduced without delay, as if any class of sufferer should be treated with the utmost consideration, it is those afflicted with mental disease.

Obituary.—The well-known pharmacologist, Dr. Craig, died recently in Edinburgh, within a few weeks of completing his ninetieth year. He was born March 28, 1832, and first entered Glasgow University, where he graduated in Arts, and at Edinburgh University he graduated M. B. C. M. in 1868. He became M.D. two years later and then a Fellow of the Royal College of Surgeons of Edinburgh in 1868. He specialized in pharmacy and therapeutics, and was appointed lecturer on materia medica at the Medical College for Women, Edinburgh, examiner at the Royal College of Surgeons, Edinburgh, and lecturer on materia medica and therapeutics at Surgeons' Hall. He was an enthusiastic botanist and one of the oldest members of the Scottish Alpine Botanical Club and of the Botanical Society of Edinburgh. In recognition of his services to the latter society as secretary, one of the Sterculiaceae was named after him. Dr. Craig was a Fellow of the Royal Society of Edinburgh, author of a Manual of Materia Medica, and edited Milne's Materia Medica and Posological Tables.

Progress of Medical Science.

Boston Medical and Surgical Journal.

March 9, 1922, clxxxvi, 10.

1. Indications for Opening the Mastoid Cortex. Francis P. Emerson.
2. The Infected Colon as Related to the Toxic Psychoses. John William Draper.
3. A Plea for Routine Examination on the Operating Table under Anesthesia as a Preliminary to Abdominal Operations. John W. Keefe.
4. Two Unusual Cases of Injury to the Tibial Tubercle. James Warren Sever.
5. Arthroplasty of the Elbow Joint: A Point of View. Harold C. Bean.
6. The Need of Sanatorium Treatment for Tuberculous Children. Walter A. Griffin.
7. Radiotherapy in Carcinoma of the Breast. George E. Pfahler.

2. The Infected Colon as Related to the Toxic Psychoses.—Dr. John William Draper. (See MEDICAL RECORD, February 18, 1922, p. 299.)

4. Two Unusual Cases of Injury to the Tibial Tubercle.—Dr. James Warren Sever reports two cases of this injury, one acute and one of many years' duration, and calls attention to the fact that the liability of the tibial tubercle to injury has been frequently overlooked and the symptoms of such trauma misinterpreted. Pain, swelling, and tenderness over the tibial tubercle do not always mean a separation of the epiphysis, unless demonstrated by *x*-rays of *both* legs. The condition of ordinary strain of the epiphyseal line at this point is not infrequently met with, and under ordinary circumstances easily dealt with by strapping, or, in the more persistent cases, by a ham splint. Operation on the tubercle for fixation of the epiphyseal beak to the crest of the tibia is unnecessary in the vast majority of cases. Many *x*-ray findings that might be interpreted as showing a lesion should not be so interpreted unless symptoms are present. The two cases reported were both of a nature that required operation. In the first the tibial tubercle pulled off, the fracture extending into the knee joint. The tubercle remained at an angle of almost 35° to 40° to the tibia. After ten days' rest in bed on a splint, the patient was operated on, the bony fragment pressed into place and held there by a mattress suture of kangaroo tendon. Only nine cases similar to this have been reported in the literature. In the second case the fragment of tibia had been separated for some time and was apparently adherent to the under side of the patella tendon. The fragment removed at operation was found to consist of bone adherent to the under side of the patella tendon. These patients made perfect recoveries. These types of cases are the only ones that really need operative procedures.

5. Arthroplasty of the Elbow Joint: A Point of View.—Harold C. Bean holds that, although, with few exceptions, favorable reports have been made by divers surgeons concerning arthroplasties of the elbow joint, and although this joint affords a unique site for experimentation, we must consider well the patient's anatomical, mental, social, occupational, and financial status before undertaking a procedure of which we can give no definite preoperative assurance of success; such success being that end-result which, in the patient's opinion, is considered worth the pain, the time, and the finances necessary for that end-result. Bean is not convinced of the advisability of arthroplasty of the elbow

joint in the majority of cases, and says he has yet to see the advantages of a few degrees of stable motion over an ankylosis in favorable flexion or an excision with the moderately flail joint. He considers the various methods of arthroplasty in general use and expresses a preference for that of Dr. W. R. MacAusland, which he describes in detail. The only objection which he raises to this method of approach lies in the question as to whether the arm can be safely placed in flexion after approximating the olecranon with kangaroo tendon. It seems like a confession of lack of faith in the operation not to be able to fix the arm in extension after operation, that is, as if the operator looked ahead with uncertainty to the period of manipulation, and, therefore, left the arm in a favorable position for reankylosis if it should form.

The Journal of the American Medical Association.

March 11, 1922, lxxviii, 10.

1. Hemorrhage as a Form of Asphyxia. Yandell Henderson and Howard W. Haggard, with the Collaboration of H. H. Beatty, R. W. Brooks, S. R. Detwiler, G. C. Ellerbeck, H. Kahle, H. B. Robb and W. H. Taliaferro.
2. Specific Precipitin Test for Human Semen. Ludvig Hektoen.
3. The Motor Activity of the Venæ Cavæ. Russell Burton Opitz.
4. Effectiveness of Infant Welfare Clinics from a Medical Point of View. J. H. Mason Knox, Jr., and Grover H. Powers.
5. Observations on Clinical and Therapeutic Aspects of Chronic Internal Hydrocephalus. Harry Robert Litchfield and Leon H. Dembo.
6. Spinal and Spinobulbar Tetraplegia of Acute and Subacute Onset: Its Causes and Prognosis. George Wilson.
7. Epidemic (Lethargic) Encephalitis: Recurrence of Symptoms One and One-Half Years After Apparent Recovery. George E. Price.
8. Active Immunization with Diphtheria Toxin-Antitoxin: Observations of the Schick Test: Duration of Immunity Conferred by Immunization with Diphtheria Toxin-Antitoxin, and Incidence of Diphtheria Following Its Adoption. Jacob Meyer.
9. Oxygen Inflations of Peritoneal Cavity in Tuberculous Exudative Peritonitis. Arthur Stein.
10. Etiology of Hay-Fever in Arizona and the Southwest. Samuel H. Watson and Charles S. Kibler.
11. Calculating Diets Containing a Minimum Amount of Carbohydrate for the Treatment of Arthritis. Roger S. Hubbard.
12. A Case of Chorea and Erythemia. Lewis J. Pollock.
13. Inefficiency in Public Health Administration. A. L. Hall.

1. Hemorrhage as a Form of Asphyxia.—Yandell Henderson, Howard W. Haggard, et al. have made these observations because of the inadequacy of the conceptions of the effects of hemorrhage as dependent upon the circulatory mechanism. The results of various degrees of hemorrhage are recorded and the effects of some treatments. The following conclusions are drawn: (1) A standard hemorrhage has been here used under which the chances of recovery and of deaths are about equal. Several treatments, particularly infusions equal in volume to the blood lost, have been tried. The data show that, although temporarily beneficial, mere restoration of blood volume, even by a fluid approximating the physical properties of plasma, such as acacia solution, does not considerably increase the probability of ultimate recovery. Transfusion of an equal amount of whole blood, after so brief a deprivation as that here used, would result in virtual restoration of normality. The conclusion is therefore drawn that it is the loss of red corpuscles which is the critical factor in hemorrhage. (2) The symptoms and processes observable in a partially exsanguinated animal are found to be identical in many essential features with those under progressive deprivation of oxygen, and with those occurring in carbon monoxide asphyxia. They are like those occurring in the process of acclimitization to great altitudes. (3) The mere visual observation or counting of respiration is quite unreliable. But, when the volume of air breathed per minute is measured, the following important new fact appears: The amount of breathing increases progressively with the blood loss. After the hemorrhage, a decrease of breathing accompanies recovery; and a further increase is an indication of, and a factor in the approach of death. The volume of breathing is thus an index of the severity of hemorrhage and a basis for prognosis. (4) A marked decrease of carbon dioxide content and of alkali in the blood occurs coincidently with the increased respiration. It is shown, by analogy with other forms of asphyxia, that these blood changes are largely due to the acapnial, rather than to the acidotic process. Low blood alkali after hemorrhage calls for transfusion of blood or at least of oxygen inhalations. (5) The similarity of many of the phenomena of traumatic shock and exsanguination is shown to consist in large part in the occurrence of each of the acapnial processes, both thus leading to the condition formerly termed by one of the writers acapnia, now often erroneously called acidosis, and probably best denominated as a disturbance of the acid-alkali balance of the blood. (6) The circulatory conception of hemorrhage, which assigns the effects of fall of blood pressure, must be supplemented with a respiratory conception, namely, that, through the loss of red corpuscles, hemorrhage is a form of asphyxia.

2. Specific Precipitin Test for Human Semen.—Ludvig Hektoen has conducted experiments which show that the injection of rabbit's with human semen induces the formation of precipitins that are specific for human seminal proteins, and this precipitin reaction may prove of value in determining the nature of spots suspected to be of seminal nature.

7. Epidemic (Lethargic) Encephalitis: Recurrence of Symptoms One and One-Half Years After Recovery.—George E. Price reports this case because it is the longest interval or remission so far recorded, to his knowledge. The child made practically a complete recovery from the first attack, returning to school. The question is raised as to whether the child could have had a reinfection. The tendency of epidemic encephalitis to relapse, and the absence of any data regarding reinfection in the disease, point to a flaring up of encapsulated foci, rather than a reinfection from an outside source. The writer points out that the possibility of a relapse in epidemic encephalitis after an interval of a year or longer is of interest to life insurance statisticians, who already are chary of renewing health policies to persons who have had encephalitis.

10. The Etiology of Hay-Fever in Arizona and the Southwest.—Samuel H. Watson and Charles S. Kibler point out that in distinction to the Rocky Mountain region, the artemesias (wormwoods) have little if any importance in producing hay-fever in the Southwest. Amaranths are an important factor, and their pollen is very active; in fact, it will probably be shown that amaranths here are the principal cause of fall hay-fever, taking the place of the ragweeds in the East and the artemesias in the Rocky Mountain region. Some seasons *Atriplex wrightii* will probably take the place of *Amaranthus palmeri*. *Franseria tenuifolia* is probably a less important cause of fall hay-fever. *Capriola dactylon* (Bermuda grass), causing the spring, summer, and fall types, will probably prove to be the common grass causing hay-fever to altitudes up to 4,500 feet, and *Poa pratensis* (June grass) above that altitude. *Gærtneria deltoidea* (rabbit bush) and *Atriplex canescens* (shade scale) are probably the most important plants causing the spring type of hay-fever. Trees are probably not an important factor in causing hay-fever; but when they do cause it they cause a very early type of hay-fever. The principle of group reactions is not applicable to the hay-fever situation in Arizona and the Southwest. It is advisable therapeutically to administer the specific pollen or pollens responsible for hay-fever.

12. A Case of Chorea and Erythremia.—Lewis J. Pollock reports a case of chorea in a woman thirty-eight years of age, with no history of rheumatism, endocarditis, tonsillitis, or a former attack of cholera. The blood showed erythrocytes 8,100,000, leucocytes 8,500, and a hemoglobin of 115. She was given roentgen rays at weekly intervals, and at the end of a month was markedly improved. When discharged, after a sojourn of about seven weeks in the hospital, the red blood cells numbered 6,400,000. Inasmuch as the erythremia persisted after the choreiform movements disappeared, the supposition seems warranted that the choreiform movements are not produced by any change in the blood but rather by a definite pathological condition in the brain, such as hemorrhage or thrombosis. The exact nature of such a lesion, the writer of this article believes, will remain conjectural until histological study of such a case is made.

The Lancet.

February 18, 1922, ccii, 5138.

1. Inflammatory Stricture of the Rectum. Henri Hartmann.
2. Some Points in the Diagnosis of Headaches and Other Nervous Manifestations of Nasal Origin. P. Watson-Williams.
3. The Schick Test for the Determination of Susceptibility to Diphtheria. A Record of 1200 Cases. T. E. Dickinson.
4. Some Varieties of Traumatic and Toxic Ulnar Neuritis. E. Farquhar Buzzard.
5. Hereditary Perforating Ulcer of the Foot. E. P. Hicks.
6. Epididymitis and Suprapubic Prostatectomy. A Study of Fifty Cases. H. P. Winsbury White.
7. The Effect of Edestin on Mammary Secretion. Gladys Annie Hartwell.
8. School Health Supervision in Canada: A Comparative Study. J. T. Phair.
9. Plague, Cholera, and Typhus in Turkey and Adjoining Countries A Twelve Months' Record. Part III. F. G. Clemow.
10. Foot-and-Mouth Disease, with Special Reference to Its Occurrence in Man. A. K. Cameron.

3. The Schick Test for the Determination of Susceptibility to Diphtheria. A Record of 1,200 Cases.—T. E. Dickinson presents this study, which corroborates in large measure the observations of Ker and Zingher, in that the greater number of positive tests were found in children between the ages of two and five years. This finding affords important evidence of the reliability of Schick test, since it coincides exactly with the age period at which the incidence of clinical diphtheria is most marked. In this series the percentage of pseudoreactions in those above the age of fifteen years was nearly twice as great as in those under fifteen years. The pseudoreaction was found to occur nearly twice as often among normal cases as among those with enteric fever, puerperal fever, and scarlet fever, taken as a whole. There is evidence that scarlet fever tends, very slightly, to increase susceptibility to diphtheria. There is also evidence to suggest that the previous administration of antistreptococcic serum tends to inhibit the development of a positive Schick reaction. It would seem that the previous administration of antidiphtheritic serum greatly increases the percentage of pseudoreaction, and should further experiments establish the same conclusion in the case of antistreptococcic serum, it would be reasonable to assume that in both cases the phenomenon is in the nature of a local anaphylactic response, to a foreign protein, of tissues cells previously supersensitized to a foreign protein. While no final conclusion can be drawn from the number tested, there is indication that by means of the Schick test it would be possible to demonstrate that the larger the quantity of antitoxin given, the longer would be the duration of the immunity. Diphtheria antitoxin was given subsequent to the performance of the test in one instance. This patient received 8,000 units twenty-four hours after the test. No impression was made on the definite positive reaction which had by that time developed.

4. Some Varieties of Traumatic and Toxic Ulnar Neuritis.—E. Farquhar Buzzard outlines a number of cases which suggests that the ulnar nerve is particularly prone to disturbances of function on what appear to be at first very slight provocations. Looking for a common factor in the various groups which he outlines one is struck by the fact that in the majority of cases the ulnar nerve is unprotected by any bony parapet at the end of the elbow, or so badly protected that during extension and flexion of that joint it is apt to slip in and out of its proper position. During flexion especially it may lie exposed to friction and pressure on the internal condyle. A consideration of many cases seems to justify the conclusion that movement, especially of a strenuous and frequently repeated character, is an important factor in the production of an interstitial neuritis. This moving contact with a bony surface is probably an important factor in producing the symptoms associated with a cervical rib, although so far as the writer knows it has not been shown that in the latter case the nervous tissue becomes surrounded by a definite thickening of connective tissue. In the case of the ulnar nerve, however, the nervous tissue is constantly exposed to minor injuries, and the neuromatous condition so often found must be ascribed to chronic inflammation of traumatic origin. In one group of cases one may find an additional etiological factor in the form of some toxic agent. The writer has seen fairly good results from merely dividing the connective tissue strands by means of longitudinal incisions, but he is still more impressed with the advantages of placing the nerve in front of the joint and so insuring its complete relaxation. He suggests that possibly a combination of both methods may be the ideal treatment.

6. Epididymitis and Suprapubic Prostatectomy. A Study of 50 Cases.—H. P. Winsbury White has endeavored to come to some conclusion with regard to the predisposing causes of epididymitis in relationship to previous infection, sepsis in the prostatic cavity, urethral instrumentation during the after-treatment, and two-stage prostatectomy. In 38 per cent. of the cases only, previous to operation, could the epididymes be considered normal. Of the 62 per cent. showing some evidence of pre-existing epididymitis, the most striking feature was the high percentage of the group giving a venereal history (46) which developed epididymitis following prostatectomy. In the group of cases in which a history of venereal disease was not forthcoming it was interesting to observe that the bulk of the cases gave a history of frequent catheterization previous to operation. There is, however, evidence which indicates that pre-existing infection is by no means the only factor of importance in determining a postoperative epididymitis. There is no doubt that the amount of sepsis existing in the prostatic cavity is a very important point in determining the degree of epididymitis. The rule followed in the treatment of these cases was not to pass an instrument of any kind until the tenth day, when a large metal sound was passed once into the bladder. The secret of successful use of the in-dwelling catheter is to avoid resorting to it too soon, and to leave it in the urethra as short time as possible. Acute epididymitis is easily produced by neglect of either of these rules. The value of a two-stage prostatectomy as a possible precaution against post-operative epididymitis should be realized when it is recalled that acute epididymitis may result from an infected bladder arising as a complication of enlarged prostrate previous to prostatectomy. In 9 of the 50 cases the two-stage operation was done and in none of these did postoperative epididymitis occur, while this complication occurred in 33 per cent. of the entire series.

7. The Effect of Edestin on the Mammary Secretion.—Gladys Annie Hartwell described experiments from which it is suggested that edestin is a very good protein, and that it improves the growth curve of suckling rats when the mother's diet is deficient in protein. When added to a diet containing an adequate amount of protein it has no effect, and when present in large amounts in the mother's diet (46 per cent. of the dry weight of food) the young die.

British Medical Journal.

February 18, 1922, ii, 3190.

1. Remarks on Obscure Intestinal Colic. H. Tyrell Gray.
2. Three Cases Illustrating the Value of Pyelography. Clifford Morson and H. P. Winsbury White.
3. A Bone Clip for the Operative Treatment of Fractures; End Results in the Case of Growing Femurs. Joseph E. Adams.
4. The Relation of the Curvature of Vessels and of Hollow Viscera to Their Internal Pressure. Cranston Walker.
5. Focal Infection in Relation to the Etiology of Skin Diseases. H. Leslie-Roberts.
6. Bile Salt as a Vehicle for a Pediculicide. B. A. Peters.
7. The Lettsomian Lectures on Amebic Liver Abscess. Leonard Rogers.

1. Remarks on Obscure Intestinal Colic.—H. Tyrell Gray reviews evidence to show that the intestine is insensitive, but that its blood supply and nerve supply are conveyed by a structure which is exceedingly sensitive to every kind of stimulus, mechanical, chemical, thermal, etc., namely, the mesentery. For many years he has believed and taught that all true visceral pain and discomfort arise from, and are primarily referred to, the mesentery, and from this source it may or may not be referred to the associated somatic nerves. Incidentally, such observations hold good also in the case of the stomach, insensitive in itself, but acutely sensitive in its mesentery (the gastrohepatic omentum). Pain referred to the gastrohepatic omentum is localized in the epigastrium, so in the small intestine colicky pain is referred vaguely to the midline—that is the situation

of the small intestine mesentery, and is not associated with cutaneous hyperesthesia. Inaccuracy of localization is thus a prominent feature of small intestine colic. The mechanism of colic consists in the natural attempt of the bowel to drive onwards a diseased or inert area, thereby inducing abnormal tension on the associated mesentery. In both the small intestines and the colon the bowel is insensitive, and colicky pain is induced through its mesentery or peritoneal attachments. There are, however, differences in symptoms corresponding in detail with the different mechanisms of the small intestines and colon. Except in the presence of obstruction, mesenteric or peritoneal involvement, colicky pain or discomfort arising from lesions in the colon occur mainly in association with powerful mass movement; it is therefore definitely related to or accentuated by taking food and the act of defecation, and occurs by reason of the drag upon the mesentery. One of the characteristic features of lesions of the colon is the ability of the sufferer to localize the site of the lesion. The wide area of mesenteric attachment of the large bowel (or of the bowel to the sensitive peritoneum) is responsible for this power of definite localization, for the mesenteric drag induced by the attempted inversion is clearly referred to the mesenteric attachment in the neighborhood of the lesion. It is this power of localization which is often responsible for colic, associated with lesions of the colon, being attributed to a gastric origin. The reference of the pain to the mesocolon may resemble fairly closely that referred to the gastrohepatic omentum, and the mechanical stimulation of mesenteric nerves in the immediate vicinity of the solar plexus evokes a reflex persistence of pyloric closure leading to flatulence and gastric distension. Thus it is not uncommon for carcinoma of the transverse colon to be mistaken for a gastric lesion.

5. Focal Infection in Relation to the Etiology of Skin Diseases.—H. Leslie-Roberts discusses his subject from a standpoint which would view focal infection as a collection of bacteria in a crypt, which, while not actively growing or multiplying, may infect the body by their cell substance, which is liberated by the action of ferments or enzymes either by autolysis or heterolysis. Clinical evidence shows that in the great majority of persons bacterial digestion in the tonsils and mouth promotes only local reactions and is not accompanied by general and remote consequences, but in not a few individual symptoms arise which must be attributed to protein poisoning. All foreign proteins, whether they be animal, plant, or bacterial, are sensitizers. Pathological symptoms accompany sensitization. The non-striped involuntary muscles are highly sensitive to protein infection; this is indicated by spasm of the venules and vaso-dilatation, accompanied by the clinical picture or urticaria, flushing of the face, edema, and erythrodermia. In other cases the sensitization may affect the fibrous tissues, the aponeuroses, the synovial membrane of the joints, producing various forms of arthropathy. When the skin cells are sensitized in cases of chronic allergy various symptoms arise: loss of hair, either diffuse or in area; increased pigmentation and increased fat formation; in short, we have evident signs of stasis in the cutaneous tissues. Other clinical forms of disease are lupus erythematosus, lichen planus, and prurigo. These may be regarded as clinical pictures according to the particular group of cells which is sensitized. All these cutaneous diseases have been shown to disappear spontaneously after tonsillectomy. Attempts are being made to include the eczematous reactions under the head of protein sensitization. There are some eczematous vesicular reactions, which the writer believes are connected with the state of allergy, but what we may describe as the normal eczematous reactions are essentially related to physical conditions in the external environment. These are sensitized to friction owing to a defect in the physical condition of the rete and cuticle with inherited or acquired increased permeability of the capillary walls. Such cases can be cured by simply raising the pressure of the rete and cuticle over the capillaries. There are undoubtedly many conditions which affect cell irritability besides protein sensitization.

6. Bile Salt as a Vehicle for a Pediculicide.—B. A. Peters recommends the following preparation: Sodium taurocholate, 10 grams; oil of eucalyptus, 50 c.c.; water, to 1,000 c.c. The bile salt is completely dissolved in water, the oil of eucalyptus added, and the whole shaken well. During the past eighteen months this preparation has been tried on 500 patients on whose heads living lice were seen. It is well rubbed into the head until the hair is wetted. The head is wrapped in a towel and the application left on all night. The head is washed with soap and water next morning. In 23 per cent. of the cases one application was sufficient; in 63 per cent. a second application was necessary, while 14 per cent. required a third application. This preparation is not toxic, is not irritating to the skin, is not inflammable, and is elegant to use as it is easily washed out of the hair.

New Orleans Medical and Surgical Journal.

January, 1922, lxxiv, 7.

1. Factors Influencing the Rate of Mortality in Surgery of the Thyroid Gland. J. M. Batchelor.
2. The Diagnosis and Treatment of Perforating Gastric Ulcer, with Report of Two Cases. John L. Wilson.
3. Some Causes and Some Results of Intestinal Toxemia. Allan Eustis.
4. Diabetes and Pregnancy. J. J. Lemann.
5. The Management of a Smallpox Outbreak. Dr. Jorn Callan.
6. Acute Osteomyelitis. Isidore Cohn.
7. Diffuse Gonococcal Peritonitis. E. S. Ficklen.
8. Specific Treatment of Malaria. C. C. Bass.
9. Necrosis of Skull with Resulting Meningocele: Repair by Tibial Transplant. T. J. Nix and J. M. Perret.

3. Some Causes and Some Results of Chronic Intestional Toxemia.—Allan Eustis holds that on the basis of our knowledge of physiological chemistry we are justified in the belief that the substances responsible for intestinal toxemia are amins formed by the putrefaction of several amino acids with loss of carbon dioxide; that these putrefactive basic amins have definite physiological action; that they are normally detoxicated by the liver; that when they are not detoxicated, they exert their specific, physiological action on the individual. However, a diagnosis of chronic intestinal toxemia, only, is rarely justifiable, any more than one of achylia gastrica, or tachycardia, unless the cause of the same has been ascertained; but on the other hand, severe nephritis, a supposed diabetes or a case of supposed hyperthyroidism, not to mention the large number of neurasthenics, may have their origin in a chronic intestinal toxemia. A number of cases are cited which serve to bring out the following points: (1) Certain cases of intractable intestinal toxemia may be due to intestinal stasis from an anatomical abnormality, which can be relieved only by surgical measures. (2) Some cases of chronic intestinal toxemia may present symptoms of hyperthyroidism, which symptoms are relieved by overcoming the intestinal toxemia. (3) Intestinal toxemia may be the cause of an albuminuria and even of symptoms of uremia, relief of which is complete after control of intestinal toxemia. (4) Severe pyorrhea may be the cause of an intestinal toxemia, and indirectly the predisposing cause of asthmatic attacks.

4. Diabetes and Pregnancy.—I. I. Lemann summarizes his views on this subject as follows: (1) All glycosurias of pregnancy are not diabetes mellitus. Many are innocent renal diabetes. (2) All patients, however, showing glycosuria during pregnancy should remain under constant observation during pregnancy and should be thoroughly investigated after the termination of pregnancy. (3) Abortion is not advisable as a routine. (4) The treatment of the pregnant diabetic is the same as that of the non-pregnant. (5) The danger of acidosis is to be avoided by the restriction of fats and by the choice of gas-oxygen as an anesthetic.

Pfeiffer's Influenza Bacillus.—Messerschmidt found this bacillus present in 90 per cent. of the subjects examined for influenza during the pandemic of 1918. Since that period he has found the same in tuberculosis and bronchitis, in the pus of boils and abscesses, and even in the prostatic secretions of chronic prostatitis, in subjects who had not been exposed to influenza. Apparently it is not to be found outside of human subjects.—*Schweizerische medizinische Wochenschrift.*

Book Reviews.

SOUTH AMERICA, from a Surgeon's Point of View. By FRANKLIN H. MARTIN, C.M.G., M.D., F.A.C.S., Director-General, American College of Surgeons; Managing Editor, *Surgery, Gynecology and Obstetrics*. Introduction by WILLIAM J. MAYO, M.D., F.A.C.S. New York and Chicago: Fleming H. Revell Company, 1922.

THIS most interesting little book is an account of two trips made by the author and others to various South American countries. The visits were made on behalf of the American College of Surgeons, and much of the value of the work to the physician lies in its descriptions of the hospitals and other medical institutions in the countries visited and in the illustrated biographical notes of many of the leading surgeons and other medical men there practising. But apart from this, simply as a book of travel it will be found most entertaining. The illustrations are excellent; most of them are from specially taken photographs, and they are very clearly reproduced and printed. A second section of the book, which is less interesting, but full of valuable detail, is entitled "A Summary of Facts." It contains data of all sorts—historical, geographical, political, social, and industrial, with statistics of industries and manufacture, imports and exports, population of the principal cities, hotels, hospitals, banks and shops, rates of postage and cables, etc., etc. A third section contains really good English-Spanish and English-Portuguese vocabularies, though the figured pronunciation is not always to be trusted. The work is not only an exceedingly entertaining book of travel but a complete and satisfactory guide-book as well and one that would prove serviceable to any visitor to South America, whether a medical man or not.

DISEASES OF THE EYE. A Handbook of Ophthalmic Practice for Students and Practitioners. By GEORGE E. DESCHWEINITZ, M.D., LL.D., Professor of Ophthalmology in the University of Pennsylvania. Ninth Edition. With 415 text-illustrations and 7 colored plates. Price, $10.00. Philadelphia and London: W. B. Saunders Company, 1921.

A BOOK that has passed through nine editions in twenty-nine years must be so familiar to all students of the subject of which it treats that anything more than an announcement of its new incarnation in improved form is superfluous. For more years than most ophthalmologists or general practitioners can look back to in professional life de Schweinitz's "Diseases of the Eye" has been an authoritative guide. The present edition, like recent editions of works on almost any subject, contains much new matter relating to ophthalmic problems which presented themselves, and were solved or not as the case may be, under the new conditions arising during the World War. The amount and number of titles inserted for the first time in this edition will astonish any one who regards ophthalmology as practically a fixed science. The fact that nearly thirty subjects of varying degrees of importance are treated of for the first time in this ninth edition is sufficient evidence that this branch of medicine is progressing constantly, and is still dynamic and not static.

GOUT. By LLEWELLYN JONES LLEWELLYN, M.B., Lond., Governor and Senior Physician, Royal Mineral Water Hospital, Bath; Fellow of Royal Society of Medicine; Author of "Arthritis Deformans"; Co-author of "Fibrositis," etc. With a Section on "Ocular Disease in the Gouty," by W. M. BEAUMONT, Consulting Ophthalmic Surgeon to the Southwestern Region of the Ministry of Pensions; Author of "Injuries of the Eyes of the Unemployed, Problems in Prognosis," etc. Price, $7.50. St. Louis: C. V. Mosby Company, 1921.

MANY and of varying excellence are the books on gout, but little and unreliable is the information most of them give us. This is not because the authors are not hard students and earnest searchers after the truth, but because the mystery of gout still eludes them. As the author of this most recent and on the whole most satisfactory treatise says: "Who can doubt that he who would elucidate the pathological groundwork of gout must be at once a clinical physician, a biochemist, a bacteriologist, a morbid anatomist?" And we might add a logician and a seeker after truth without prejudice and unbound by the traditions of the past. Yet each student of the subject must have a theory as a working basis, and that of Dr. Llewellyn is infection, although he admits that back of that there must be "innate tissue peculiarities reflected in corresponding obliquities of tissue function," (in other words, disorders of metabolism) through which "the general resistance of the body to invasion by infections is lowered." Whether one agrees or not with the author in his theory, the time given to a careful reading of this book will be well spent, for much food for productive thought will be found here and many useful hints in the line of treatment. There must be several forms of gout (as manifested in the accepted gouty syndrome) distinct in their etiology and therefore calling for different therapeutic management, and one inclines to the belief that Dr. Llewellyn has discovered one of these forms.

NOUVEAU TRAITÉ DE MÉDECINE. Publié sous la direction de MM. les Professeurs G. H. ROGERS, F. WIDAL et J. J. TESSIER, Fascicule III. Maladies Infectieuses (suite). Price, 40 fr. net Paris: Masson en Cie, 1921.

THE third volume of this system contains articles on typhoid and paratyphoid by Widal, Lemierre and Abrami; colon bacillus infection by Widal and Lemierre; dysenteries by Dopter; cholera by Ruffer and Crendiropoulo; botulism by Sacquépée; Malta fever by Sacquépée; trench fever by Strong; influenza by Menetrier and Stévenin; pest by Sacquépée and Garcin; and yellow fever by Sodre. The articles on typhoid and paratyphoid fevers fill about one-half the volume. They are very complete. The other sections are also satisfactory. Strong's discussion of trench fever is classical as was to be expected. The striking difference from customs in this country is noted in the sections devoted to treatment but these differences are chiefly in the non-essentials and so far as specific treatment is concerned they are in full accord with what is generally accepted as correct. One notices at times an annoying tendency to misspell American proper names. So far as we have been able to tell in the volumes issued up to the present time this system will compare favorably with any of those recently issued in English.

A TREATISE ON DISEASES OF THE SKIN, for Advanced Students and Practitioners. By HENRY W. STELWAGON, M.D., Ph.D., Late Professor of Dermatology in the Jefferson Medical College; Late Consultant in the Dermatological Department of the Philadelphia General Hospital, to the Howard Hospital, to the Pennsylvania Institution for the Deaf and Dumb, to the Pennsylvania Institution for Feebleminded Children, and to the Widener Memorial Training School for Crippled Children, etc. Ninth Edition, with the Assistance of HENRY KENNEDY GASKILL, M.D., Attending Dermatologist to the Philadelphia General Hospital and Member of the American Dermatological Association. With 401 Text Illustrations and 29 Colored and Half-tone Plates. Price, $10.00. Philadelphia and London: W. B. Saunders Company, 1921.

IT is difficult to say anything new in a review of a book which appears in its ninth edition. Indeed a book that has held its own with a host of competitors in every country of the world for nineteen years speaks for itself. The illness and lamentable death of the gifted author threw much of the work of revision on Dr. Gaskill who has discharged his duty in a way that could not have failed to receive the commendation of Dr. Stelwagon, and has fully justified the choice by that author of his assistant. The characteristic of the book is the clarity of style of the writer and the simplicity of language which makes even the difficulties of diagnosis appear easy. It is a work especially for the general practitioner and non-specialist, but so complete is it and so enriched with copious references to the literature of this branch that it has always been a favorite with dermatologists. The illustrations deserve a word of praise. The book might be made more serviceable by a judicious pruning (it is over 1300 pages in length), though we admit that the task of cutting out any great amount would be one of considerable difficulty.

Society Reports.

MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Stated Meeting, Held January 23, 1922.

THE PRESIDENT, DR. ORRIN SAGE WIGHTMAN IN THE CHAIR.

President's Address.—Dr. ORRIN SAGE WIGHTMAN delivered this address, in which he said it was customary for the incoming president to outline the policy and to give a summary of the consensus of opinion on matters of importance to the Society and to outline a campaign for the coming year. It would perhaps be of interest to the members to recall that this was the 116th year of their chartered existence and the 127th year since the organization of the Medical Society of the County of New York. The membership of the Society was about 3,000 out of a possible 6,000. This was the largest county medical society in the State and paid about one-third of all annual dues paid to the State Society. The State at large looked to this Society for leadership and guidance. Dr. Wightman paid a tribute to Dr. Ward for the very excellent scientific programs presented to the Society during the past year and commended him for the success with which he had guided the Society through its first year under the new plan of organization. The new plan had had a marked influence for the better in handling the affairs of the Society. There had been some complaints as to the management of these affairs. Those who managed the Society had been characterized as a close corporation, they had been accused of steam-roller methods, and of having ruled with a high hand. It must be remembered that if one expected to get efficiency in any group power must be concentrated into the hands of a few—of men who would work. That was the method of big business and as a society they would have to adopt it if they hoped to succeed. No favor was shown in the matter of membership. The Committee on Membership considered every applicant on his merits; it made no difference by whom he was sponsored. It had been their policy to look to quality as well as quantity in selecting their membership. Looking after the affairs of the Society was not idle work, though sometimes it was thankless. Dr. Wightman said he knew of no body of men more dormant, inactive, and indifferent to their affairs than the members of the medical profession, and he made a stirring appeal urging them to awaken and take an interest in matters vital to their welfare. They could not expect others to guard their interests when they themselves were so indifferent. He had heard the Governor say the chiropractors had as good a right to practise medicine as regular physicians provided they complied with the law. Governors and legislators were interested in seeing that laws were passed sanctioned by the majority of the people and in maintaining those laws; they were not interested in the scientific and ethical standards of medicine. If these were to be maintained the medical profession must see to it themselves. Other groups of men went to Albany and looked after their personal interests; the physician was an individualist. When matters came up that threatened the welfare of the profession he felt sorry but did nothing about it. Legislators had asked him how the medical profession could expect to get the right kind of medical laws when the doctors themselves did not know what they wanted. The *New York Medical Weekly* had been called into existence largely through the efforts of the Committee on Civic Policy. Its aim was to bring before the medical body certain matters of medical interest, particularly matters having to do with medical legislation, and to conduct an open forum where every doctor had the privilege of expressing his opinion on social and economic questions affecting the profession. He hoped that it would have the cooperation of physicians and that it would assist in getting them somewhere. Dr. Wightman then spoke of the attitude of certain large foundations interested in public uplift, whose motives were no doubt good, but whose methods tended to be paternalistic and at times threatened the best interests of the medical profession. He thought they should take the medical profession into their confidence instead of telling them what to do. These interests were bringing lay control into medical matters and thus greatly limiting their usefulness. When it came to workmen's compensation the medical profession were again told what to do. If medicine was to be a state institution and if they were to be told by state and city authorities, health departments and various uplift organizations what they were to do, why not recognize the fact and act accordingly? Most men did not go into the medical profession to get rich, but surely "the servant was worthy of his hire." When a man had gone through college and medical school and had spent a couple of years as an interne in a hospital it was not fair to be compelled to compete with a chiropractor who had spent six weeks in preparing to practise. While he did not think these things would be productive or lasting wrongs nevertheless physicians had economic and social interests at stake and the members of the Society should participate actively in the work of their committees; if they did this it would spell a better County Medical Society this year.

Is Radium Worth While?—Dr. HOWARD A. KELLY of Baltimore delivered this address, in which he stated in part that he had begun his work in radium therapy about thirteen years ago. He regretted that the profession had not at that time also taken an active hold of radium therapy; his own experience with Dr. Curtis F. Burnam now amounted to about 9,000 cases treated with radium. Radium was now again under attack and it was a matter of such extreme importance that it was time to enter the lists again in its defense. In order to use radium successfully one had to be an optimist and to forget many failures. The work was difficult; it belonged to a trained specialist. If not used with care and skill radium might easily cause distressing accidents. Several things were necessary to success for general work with radium; first, one must have at least one-half a gram of radium, and considerable experience or, perhaps better, training. He considered that for the present a man of surgical instincts was the one who could best handle radium with balanced judgment, deciding for or against operation and taking advantage of the aid it offered in preoperative and postoperative treatment. Dr. Kelly related an extraordinary case which he had seen only the day before. A woman was found last fall at an abdominal operation to have a huge extensively adherent carcinoma of each ovary. The condition was clearly inoperable. The abdomen was closed. They had radiated her thoroughly and she had just returned perfectly well with a movable tumor the size of a grapefruit, which might be easily excised. He had seen other similar cases. Everyone who used radium should be a pathologist. The microscope was essential in investigating the tissue attacked and in estimating progress. At all times it ought to be at hand with instruments for local anesthesia and for taking bits of tissue for freezing and immediate examination. In radium therapy as in surgery, cases treated early in the course of disease, of whatever nature, gave incomparably better results than those seen later. The laity needed education on this point, but not so much he thought as did their medical confrères who sometimes kept and nursed a patient with a sarcoma or other interesting ailment, coddling him and exhibiting him to students when he ought to have been sent within forty-eight hours to the radium therapeutist. Another essential in the use of radium and individualization, avoiding treating patients as mere members of a group. Two cases might look alike clinically and microscopically and yet one would improve and the other would fail to be benefited by treatment; herein lay many of their disappointments. Dr. Kelly said he wished to emphasize the *palliative results;* if he could do nothing more than improve and relieve his patients, as he had been able to do, never curing one, it would still be worth his while to continue this work. If a patient remained well for a year, he talked about cure even though later he had to check up relapses, but he made it very clear that the "cure" was qualified by an attitude of watchfulness coupled with examinations. The patient should always be instructed to return the moment any change was

observed in a superficial lesion. Efficient radium therapy called for one-half, or better, one gram of radium, an emanation apparatus, a physicist with an experienced staff of radium technicians and a new man on each pumping day of the week. The blood of the technicians and nurses if they stayed over a month should be examined regularly and as soon as the leucocyte count fell one or two thousand the worker should stop. One also needed perfect clinical facilities; was advantaged by a laboratory for chemical and physical studies; a pathologist and a pathological laboratory were a *sine qua non*; various medical consultants must be within prompt reach; an *x*-ray department was imperative; a photographic department, a record room, a library and a large fund of optimism all contributed to carry on the work efficiently. Now for the gamut of radium therapy with a few remarks on each head: First of all, if radium did nothing but to *cure basal cell epitheliomata* of the face it would be well worth all our trouble, outlay, and enthusiasm; it did cure about 95 per cent. of all early cases easily. It was not so effective in the fortunately rarer *squamous cell epitheliomata* where surgery might be the best recourse. With radium one could practically wipe out all but the advanced lip lesions; here the danger was of over-radiating and destroying the lip. Incipient lesions were best excised with the cautery. If a neck was operable Dr. Kelly said he believed a block dissection was best, but whatever the results were must be shown by statistics. In *carcinoma of the tongue*, if the lesion was well localized in the front part of the tongue it was better to excise; if the lesion was in the back part of the tongue it was better to implant radium in a circumvallate way; this would usuallly wipe out any early lesion. The statistics of Dr. C. F. Burnam and Dr. Crowe with reference to the results of radium treatment of cancer of the tongue and nasopharynx showed seven cases of *angioma in the nasopharynx* cured by radium, cases with no other possible plan of treatment. *Fibromata* (juvenile polyps), tending to invade deeply in finger-like projections, gave better results when treated by radium than by operation. Some of their patients treated for lymphosarcoma of the nasopharynx were well upwards of five years after radium treatment. As to *carcinoma of the larynx*, the permanent results of radium treatment were not striking. Here it was often best to do a laryngotomy, and then to use radium. In the treatment of tubercular adenitis radium often gave remarkable results. If one could do nothing else with radium but treat tubercular adenitis it would still be worth while. A two inch exposure to a gram for two hours would often clear up such an adenitis. In *breast cases*, Dr. Kelly said he believed in surgery in a good operable case, but in inoperable cases and recurrences he always used radium. He had seen massive adherent, florid carcinomas of the breast with axillary involvement melt under radium treatment. They did not cure those cases, but the visible disease might melt down to insignificance and the patients were made immensely more comfortable. With any malignant lesion in the breast, even a small one, there might be a lesion within the chest, therefore one should make an *x*-ray examination in all cases as urged by Dr. Burman many years ago. The lenticular recurrences in the skin were easily wiped out with radium and this was true of most large discrete masses. Fixed lesions and those attached to the deeper structures were just as effectively influenced by radium as the more mobile ones. Radium would also be worth while if it only helped, as it did, mediastinal lymphosarcomata and leucemias, Hodgkin's cases. and aneurysms, in which last group occasionally great relief of pain was experienced. Again radium occasionally gave splendid relief in *bone tumors*, and in a few instances even brilliant results. In brain tumors they had seen some remarkable improvements; almost all of these cases had been operated upon; one not operated did about as well as the others. In one of these radium used at intervals prevented terrible headaches and epileptic attacks. In *testicular tumors* with abdominal metastases, while they had had many disappointments, some got well and some of these again relapsed. *Malignant bladder tumors* in women, if seen early, could be cured sometimes. Cancer of the vagina which had not invaded the deeper structures was curable almost invariably. He was about to treat all early cases which could be followed carefully with radium alone. With reference to *carcinoma of the cervix*, he was not prepared to speak with so much assurance. In borderline cases with some lateral infiltration, Dr. C. F. Burman had noted about 31 per cent. of cures over several years. In inoperable cases with extensive infiltration radium was most valuable in a palliative way and gave an occasional cure. In *carcinoma of the body* some very encouraging results were recorded in their clinic. In employing radium therapy in this region one must avoid hurting the rectum by interposing lead screens. It was important in these cervical growths that the first treatment should strike a heavy blow. The radium must not be permitted to become displaced here and to burn sound tissues; this often happened. For the *bleeding uterus* (myopathic) radium was practically specific, but in young girls of course curettage was preferable. Some 700 cases of fibroid tumors had been subjected to radium therapy and it succeeded, at a rough estimate, in about nine out of ten cases. They had treated about 78 leucemias, some 60 cases of splenomyelogenous, 21 chronic lymphatic, and 23 acute leucemias. Among these there were some in good health for three, four or five years; even then there were relapses. Such cases needed constant watching, and the leucocyte count remained up to fifteen or twenty thousand. Some had been so improved that they had been able to go back to work. They needed consultation with their medical confrères over this group. Cases of *Hodgkin's disease* showed remissions of several years and much could be done with Hodgkin's disease if seen early. Here and there a carcinoma of the rectum did well. In treating *lymphosarcoma* it was vital to radiate the entire lymphatic system. Dr. Kelly showed lantern slides illustrating the results they had been able to obtain by radium therapy. Among the slides were several showing metastases in the vertebræ greatly relieved of pains; one from being a wretched suffering invalid declared she was well, although no changes could be seen in the *x*-ray pictures of the vertebræ.

The Modern Conception of X-Ray Dosage.—Dr. WILLIAM DUANE, Professor of Biophysics of Harvard University, made this contribution to the program. He said the practising physician frequently had to ask the question, "Shall I or shall I not send such and such a case to the radiologist for treatment?" He was not a physician nor a surgeon though he had the highest opinion of the medical profession, but simply a man carrying on research on those forms of radiation which were used in radiotherapy, so he spoke only from the scientific point of view. It seemed to him that he could best employ the few minutes allotted to him if he spoke of the modern conception of *x*-rays and said a few words in regard to the dosage, comparing the amount of energy that could be sent into the tissues by means of *x*-rays with that by means of the gamma rays from radium, and conclude by making a few remarks, to emphasize in particular the great danger of these modern *x*-ray plants. As to the modern conception of the *x*-ray, firstly the *x*-ray tube itself was a tube of glass with the air exhausted. Two metal rods from a high tension generating plant caused a current of electricity to pass through the vacuum between these two pieces of metal. After defining an electron, Dr. Duane stated that the high tension generating plant caused the electrons to be thrown from one electrode to the other with great force, with nearly the velocity of light. The impact of the electron, the atom of electricity, against the atom of ordinary matter produced the *x*-ray. According to the old conception the impact sent out a wave in every direction which traveled in an ever-increasing sphere. Each *x*-ray produced by the atomic impact passed out as a spherical wave in all directions. The modern conception ways not exactly like that. It was that when the atom of electron struck the ordinary atom the *x*-ray traveled in one direction only. A certain quantity of radiant energy after the impact traveled out as a bundle of radiation in one direction. Another impact sent out a bundle in another direction so that there were a large number of bundles of

energy traveling in different directions at the same time, but each bundle was distinct. This theory was somewhat comparable to Newton's corpuscular theory of ordinary light, but one must not regard the *x*-ray as corpuscular at all, but as a little series of waves traveling in one direction. The important characteristic of these waves was the wave-length, by which was meant the distance between one wave and the wave that followed it. The wave-length and the amount of energy in one bundle were related to each other in a very simple manner. If one multiplied the energy by the wave-length one obtained a constant quantity and a very important one, the same for all *x*-rays. If one measured the wave-length, he knew, therefore, what its energy was immediately, so it was very important to know the wave-length. The effect which the *x*-ray produced depended upon the wave-lengths and upon their number. All the chemical and physical effects, the decomposition of water and of other chemical compounds, etc., all these effects depended upon the wave-lengths and their number. The wave-lengths and number were the important things to know in all estimations of dosage. Dr. Duane then exhibited slides to show that it was possible to measure wave-lengths by means of the spectrometer. To measure the relative number of waves he had curves in which the horizontal coordinates represented the wave-lengths and the vertical coordinate was proportional to the number of *x*-rays having the wave-length. Copper was, but lead was not a good substance to use as a filter. A constant voltage produced much more radiation that an alternating one. In regard to the practical application of radiation in therapy, the problem as it presented itself to the physicist was "How can I project into a tumor below the surface of the skin the largest amount of energy as compared to the amount absorbed by the skin?" As a concrete example, suppose we wished to know how much radiation would reach a depth of 10 cm. compared with the amount absorbed by the skin? The gamma rays were about one-half absorbed in passing through 10 cm. of tissue, but the amount of radiation was also reduced by the fact that it was further away from the source. If the radium was 10 cm. away from the skin and the tumor 10 cm. beneath the skin the tumor would receive only one-fourth the radiation received by the skin, even if the tissues did not absorb it all. The amount of radiation would be still further reduced by the absorption of the tissues to the extent of 50 per cent. The tumor itself would receive, therefore, only one-fourth of this 50 per cent., or 12½ per cent. of the skin dose, due to radiation traveling in a direct line from the source. With the ordinary *x*-rays as used at the present time, produced by 80 or 90 volts applied to the tube, 12½ of the total radiation was all that passed through tissue 10 cm. thick. With the new style, high voltage apparatus 25 per cent. was the greatest amount that could be forced straight through the tissue, about 75 per cent. being absorbed. The question then presented itself whether it was possible to increase the fraction of radiation that reached the depth of 10 cm. below the skin by increasing the distance of the tube from the skin. If the tube was placed 90 cm. from the skin and the tumor was 10 cm. below the surface of the skin, or 100 cm. from the source, according to the laws of physics about 81 per cent. of the radiation that passed through the skin would reach a point 10 cm. below it. After allowing for absorption by the skin and the tissues beneath the skin, about 20 per cent. of the radiation would reach the tumor 10 cm. below the surface, whereas with gamma rays only 12½ per cent. of the radiation reached that depth. One could increase the amount of radiation by increasing the distance and the amount of radium employed, but owing to the cost increase in that way was prohibitive. One point to be emphasized was that in estimating the dosage one could not base his calculations on the amount of radiation that went straight from the source to the tumor. Experience had shown that *x*-rays and radium produced secondary radiation, when the primary rays passed through matter. The importance of these secondary rays in therapy had been recognized only in recent years. That was the important contribution to this work that the Germans had made. Of the rays that reached a certain point part of the radiation came directly from the tube and part came as secondary radiation from the surrounding tissue. Of the amount of radiation reaching the point to be radiated from two to three and half times as much might come from secondary radiation as came directly from the source. In other words secondary radiation was a very important factor, and, if one did not take it into consideration, he might make an error of several hundred per cent. Again the shorter the wave-lengths the greater secondary effect. This was an additional reason why one should use short *x*-rays. Dr. Duane stated that one thing he wished to bring out was the very great danger in handling these new high power *x*-ray generators producing very short wave lengths. It was a grave question whether these high power machines should be delivered into the hands of everyone or whether they should be confined to institutions. The danger was not only to the patient and to the operator but to people in neighboring rooms. One-half of one per cent. of very short wave-lengths would pass through a sheet of copper one inch thick or through a concrete wall. Anyone working in an adjoining room or on the floor above or below such an *x*-ray generator should be protected. For the patient these high power plants were very dangerous. As was well known a great many deaths had been produced by radiation. It seemed to him that the question here was one the medical profession would have to decide by the combined weight of their individual opinions, namely, the question as to how far it was advisable to submit patients to treatment which had so much danger attached to it. This question was one which would have to be decided in the near future.

Dr. W. H. STEWART stated that the problems confronting them in deep roentgenology could be summed up as follows: (1) The introduction into deep tissue of hard filtered rays. (2) The accurate measurement of the amount of such rays which reached the deep structures. (3) The determination of the correct depth dose of *x*-ray for various lesions, both benign and malignant. Dr. Coolidge and others had at last succeeded in producing practical *x*-ray tubes which could be used with high voltage machines. With the aid of these tubes and an apparatus generating 180,000 to 200,000 volts, *x*-rays could be introduced into the deep underlying structures. They had also learned, applying the physical law of quadratics, that this introduction could be greatly facilitated by increasing the distance between the anode of the tube and the skin distance. Larger fields, permitting the more extensive use of secondary radiation had also in a great measure assisted in the solution of this problem. It had been proven that the use of heavier filters, such as ½ to 1 mm. of copper or zinc in combination with higher voltage, increase of distance, and larger fields made it possible to deliver to tissues 10 cm. below the surface 30 to 40 per cent. of the intensity of the skin dose. *The determination of the accurate amount of x-ray which reached the deeper structures had always been difficult.* Within the last two years, a number of different methods of measurement had been advocated, all of which had their special advantages The method which seemed the most practical was the use of the juntoquantimeter. A number of different forms of this apparatus were now in use, but the one which appealed to the speaker most was that modified by Freiderich of Freiburg, and which consisted of a small ionization chamber of graphited horn which could be placed on the skin or introduced into the body cavities such as the vagina or rectum. This ionization chamber was connected with a Wulf electrometer by a flexible cable in such a manner that the electrometer could be placed behind the lead protective screen where the operator could make accurate readings while the *x*-ray tube was in operation. Freiderich had established an electrical unit applicable to this juntoquantimeter, the full excursion of the indicator on the electrometer representing five such units. Experiments had demonstrated that 300 units produced death to the skin or what was known as a necrotic dose. About 150 units, or 50 per cent. of the necrotic dose, resulted in a reddening of the skin —this was known as an erythema dose. Knowing the time required for the application of five units it was

an easy matter to determine the exposure necessary to produce an erythema dose or a fraction thereof. Another popular juntoquantimeter was that model which called for a reproduction of the electrical conditions as though the patient was being treated. The anode of a certain tube was set the desired distance from the front surface of a water tight box, the latter representing the patient's skin and in front of this surface was placed a lead diaphragm with an opening of the size selected for the treatment field; over this opening in the diaphragm was placed a filter. Water representing the human tissues, was placed in the box until the desired depth was obtained; back of this was the ionization chamber connected with the electrometer. With the apparatus set in this way one could ascertain how much time was required to obtain a certain depth dose. Still another ingenious method of determining the depth dose was by the use of Dessauer's curves. Professor Dessauer of Frankfurt à Main had devised a series of charts, covering practically all possible electrical conditions. The curves on these charts gave the operator accurate information regarding the actual percentage of the skin dose which reached certain depths. Thus one could estimate how many fields were required with a certain voltage, distance, diaphragm and filter to administer a certain dose of *x*-ray. The method, if used by skilled technicians, seemed very accurate; Professor Dessauer had made his estimate of depth doses as a result of investigations covering a period of three years. Three different tests—all giving the same identical results—were employed. With such painstaking work one could readily understand why he himself and the advocates of his method placed such confidence in the accuracy of Dessauer's curve. Even with all these apparently successful methods of measurement, one must not forget that there was a considerable variance in the estimation of what an erythema was—the degree of reddening was a very potent factor. The susceptibility of the skin was also to be considered. There were many individuals, especially blonds, whose skins were conspicuously more sensitive to the ray than others. *The determination of the correct depth dose of the ray for various lesions, both benign and malignant*, was one of the most difficult problems. The establishment of a definite carcinoma dose was almost impossible because of the great variance in carcinomatous structures and their radiosensibilities. This radio-sensibility was not altogether histological, the general condition of the patient being an important factor. The skin of a cachectic patient did not always show erythema when a full erythema dose was given. In fact, subjects showing a distinct cachexia were unfavorable for roentgen treatment. We must also bear in mind that all tissue was not equally sensitive to the *x*-ray. For instance, youthful subjects were more sensitive than persons of more mature age. Malignant growths in which connective tissue predominated required considerable more *x*-rays than those in which the cellular structure was most abundant. Carcinoma of the breast and uterus responded more favorably to deep roentgen treatment than carcinoma of other organs although some favorable results had been obtained in cases of carcinoma of the rectum. It was generally conceded that it was necessary to introduce into a carcinoma at any given depth 110 to 120 per cent. of the skin or erythema dose in order to destroy the growth. This was estimated by multiplying the number of fields by the percentage of the skin dose, which reached a required depth below each field. It was found that the destructive roentgen dose for the ovarian follicle was 30 to 40 per cent. of the skin dose. Permanent or temporary amenorrhea was easily established. Small myomas disappeared with the same treatment. Large myomas required 50 to 60 per cent. of the skin dose. Sarcoma as a rule did not require as large a dose of *x*-ray as carcinoma, although here again the location and the histological elements, as well as the condition of the patients, must be given consideration. As a rule, however, 50 to 60 per cent. of the skin dose was all that was required. In conclusion Dr. Stewart stated that the exact measurement of the depth dose was most important. Apparently the problem had been solved by the use of the juntoquantimeter; it might be true, however, that in the hands of a responsible physicist the instrument was absolutely reliable while in the hands of an inexperienced person it might cause considerable miscalculation.

Dr. CHARLES N. DOWD, continuing the discussion, said that anyone who had listened to the papers must appreciate that the forms of radiation they described were tremendously powerful. It had been interesting to trace the development of the subject. He remembered when the first radium brought to this country was placed at the disposal of the Memorial Hospital during the intervals when it was not on exhibition at the Museum of Natural History, through the generosity of Mr. Geo. F. Kunz of Tiffany Company. Dismay followed the leakage of a portion of this radium from its faulty capsule. Fortunately it was recovered but the Hospital Authorities were unwilling to longer assume the risk of keeping so valuable an agent. The development of the problem in the intervening years had been most interesting, but this development had not been a steady one. Like most therapeutic agents it had progressed by oscillations. There had been periods of therapeutic hopefulness, "inflation," if one might so speak and these had been followed by periods of depression. These oscillations had been dependent in some measure on the results which had been obtained from the use of radiation and in some measure in the optimism or pessimism of the particular men who had been working on the problem. It was of the utmost importance that we should keep our poise and give to radiation all the credit which belonged to it, but that we should also remember its limitations. In studying all problems connected with malignant disease we must continually think of two factors of paramount importance: (1) Diagnosis. (2) Natural History of the Disease. In comparing the diagnosis as made by the surgeon and the diagnosis as made by those who used radiation, we must acknowledge that the surgical diagnosis was more likely to be accurate. If the diseased tissue was removed and inspected both macroscopically and microscopically the percentage of diagnostic error must be very small. Benign growths were not likely to be confused with malignant growths. In noting the work of those who used radiation it had been very evident that at least a portion of that work had been done on insufficient diagnosis. We were much pleased to hear Dr. Kelly state that he regularly removed a specimen in cases of Hodgkin's disease to confirm his diagnosis. The entire question of removal of specimens for diagnosis needed revision. It was possible that the danger of spreading infection had been exaggerated. The reports of Dr. Wood on rat tumors and recent reports made by Dr. Peck on the later history of some breast cancers from which specimens had been removed indicated that there were many instances where proper removal of a palpable portion of a growth for diagnosis might be done with such safeguards as to conserve the patient's welfare. Certain other observations which had come to our notice also indicated that radiation was frequently done without appreciating the Natural History of the Disease, for instance a patient recently came to the hospital, on whose thigh a small malignant growth had been locally cured by radiation, but she had an enormous metastasis in her groin from which she died. It manifestly was wrong to treat the thigh without treating the groin. Similarly one who treated scirrhous carcinomas in women over seventy with radiation might easily get an erroneous hopefulness concerning its efficacy. These patients usually lived for a long time without any treatment, and naturally did well under radiation. It would however be very unfortunate to believe that the same treatment was equally good for young women with rapidly progressing breast cancer. Only to-day, Dr. Dowd said he had been talking with a director of a very important Cancer Institute who insisted that radiation should only be used for those patients who are distinctly inoperable and that it should be used not as a curative agent but as a palliative agent. With regard to tuberculosis of the neck lymphatics, we must similarly appreciate that radiation had a definite place. It was, however far more important to recognize that these patients should be taken in the early

stage, that this disease was usually of many years' duration, beginning in childhood, and that there was a very definite period in which a carefully performed operation with a duration of one-half to three-fourth of an hour would give 80 to 85 per cent. of permanent cure. This he believed was a far better result than would be obtained by any form of radiation. Surgeons were continually operating on patients for whom radiation had failed. On the other hand they frequently referred patients with extensive neck infection. for radiation after making as thorough a surgical removal of the disease as was practicable.

Dr. BURTON JAMES LEE said it seemed to him that they all appreciated without saying it that radiation by *x*-ray and by radium was here as an established therapeutic agent. The experimental stage in radiation had gone by some years ago. He felt that such a statement was proper because we had behind us at the present time Dr. Kelly's thirteen years of work more or less, certainly a great many years in the use of radioactive substances. As a surgeon in an institution using radiation, certain experiences had come to him. In the first place, rather often the physician might feel that the use of radium in malignant disease was only designed as a more or less forlorn hope, as a thing to be used in the last end of the issue. That was not their feeling at the Memorial Hospital. As the consequence of results obtained there that idea was falling more and more into the discard and better cases were coming to the institution. This more hopeful attitude was shown by the fact that epithelioma of the lip was being treated by radium with radium along the lymphatics. Epithelioma of the tongue was treated by excision of the growth and the implantation of radium. Epithelioma of the tonsils was treated by excision and implantation of radium. They were all agreed as to the advisability of operation in primary operable carcinoma. In older patients selected cases were now treated by radium. They had for several years been treating recurrences and primarily inoperable cases with radium. In cancer of the cervix operation was followed by radium implantation. In cancer of the body of the uterus radium followed by hysterectomy had shown encouraging results. In carcinoma of the bladder and prostate they had been using radium, often by a suprapubic incision. All this work was in its infancy. The talk by Dr. Duane was enough to show that the medical profession must have the help and guidance of the physicist and the physiologist, who must not only be competent men but must be interested in the treatment of tumors. The work must be done by an intelligent group of men (among whom must be included an internist) looking for the truth and they must be permeated, as Dr. Kelly had said, with a great deal of optimism. He felt that the results were very encouraging and that if we could keep our feet on the ground and not go off on by-paths, but consider each case as an individual problem, then with the aid of the physiologist, the physicist, and our medical confrères, we must get more and more benefit from the use of radium.

Dr. C. EVERETT FIELD stated that their work at the Radium Institute had extended over a period of eight years, and had permitted them an opportunity of observing all branches of radium therapy. Early in the investigation they took up the internal administration of radium chloride in dosage infinitely small. The early reports by Dr. Robert Abbe of his experiments in stimulating the germination of vegetable life, by means of radium, directed their attention to the physico-chemical action of this element on certain processes of the body chemistry. Radioactivity had been shown to possess a potent influence on metabolism that might be good or bad, according to its administration. Attention had rightfully been directed to the dangers which might follow the use of radium as applied in malignant disease. It was quite true that in radium we were dealing with an agent capable of exerting as much harm as good. There were a few situations where radium alone had been shown to accomplish certain definite good. In cancer of the uterine cervix, in many of the malignancies of the head, in laryngeal and osophageal cases, in lymphosarcoma, and in tuberculous glands of the neck, the reports were so favorable as to permit us to advise the surgeon to keep his hands off. Beyond this limited field, radium was but the direct adjunct of surgery. When it came to the discussion of deep radiation either by *x*-ray or radium, they were familiar with the danger that lurked in overdosage. Frequently they witnessed a shock to metabolism and subsequent toxemia that at times was followed with fatal termination. The new deep *x*-ray therapy now being investigated had as its chief criticism, a very large element of damage to the metabolic processes, with a heavy primary mortality. For preoperative and postoperative care of malignant cases, it was highly important that radium be considered. The pathologist and biochemist had shown us that radiation checked malignant cell proliferation, and changed the chemistry of the fluid of the tissues treated. We were made certain that for a period, limited at least, proper radium application served to check the processes of metastasis. If such a statement were correct we should be in a position to advise preoperative radiation in every prospective operative case, say two or three weeks before surgical intervention. He felt that such a course could not fail to be productive of much better statistics. Radium itself needed no defense but a better understanding. It had been proven that radium had certain properties that could serve well in the destruction of cancer. Improper knowledge as regarded the condition of the patient, the type of growth, as well as bad judgment or ignorance governing the application of radium, spelled failure. Radium therapy had suffered at the hands of the over-enthusiast and the skeptic alike in the years past, and it was to be criticized again. In the hands of highly specialized workers with laboratory facilities, its future was safe, and then only. We had neglected to give proper credit to Dr. Howard Kelly and Dr. Robert Abbe, the pioneers of radium work in America, who for fifteen years had been pleading the cause of radium against great opposition. It must be a matter of great satisfaction to these men to see the generous acceptance that was now accorded to their statements. The real problem now before the radium therapist consisted, Dr. Field believed. in the recognition of the need of studying the prospective radium patient, to encourage the support of metabolic function during and after radiation. Such a régime was as important as was the radium itself.

Dr. KELLY said he merely wished to thank the gentlemen for having covered the ground so carefully. Dr. Dowd had brought out a point he wished to insist upon, namely, that the radium therapist ought to be a surgeon who had at his finger ends all the resources of surgery and was prepared to use them immediately. They made it a routine to put everything under the microscope. In closing, Dr. Kelly emphasized his belief that radium had come to stay.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON OBSTETRICS AND GYNECOLOGY.

Stated Meeting, Held December 27, 1921.

DR. WILLIAM P. HEALY IN THE CHAIR.

General Edema of the Fetus Associated with Osteogenesis Imperfecta.—Dr. HARBECK HALSTED reported this case, in which the defects seemed to be in the long bones and those of the skull. The long bones were very short and friable and there was evidence in the *x*-ray pictures that fractures had occurred *in utero*, with subsequent healing, in one place making a marked angulation, and in other places represented by callus. The skull bones were only represented by small plaques of bone. The bones had not been studied microscopically as sufficient time had not yet passed to decalcify them. General edema of the newborn was a rare condition. Ballantyne had collected 70 cases from the literature between 1614 and 1898. Shumann had since collected 38 additional cases. Ballantyne described it as "a morbid condition of the fetus characterized by general anasarca, by the presence of fluid effusions in the peritoneal, pleural and pericardial sacs, and usually by edema of the placenta, and it resulted in the death of the fetus or infant before, during, or soon after birth." He stated that there was friability of the subcutaneous

tissues and also sometimes of the muscular and osseous. These two statements taken together described this fetus very well. The clinical history of cases of this fatal malady offered several points of interest. The mother was nearly always well advanced in child-bearing life and in only 7 out of 65 cases was her age less than thirty years; in only one instance was she primaparous. Maternal dropsy and hydramnios were common, and syphilis very uncommon. Premature and difficult labors were common. This woman was 24 years of age and without hydramnios. She had postpartum eclampsia. The etiology and pathology of these cases was quite obscure. One noteworthy occurrence in this case was the speed and completeness of the disappearance of all symptoms in the mother after the birth of the child. The patient was white, born in the United States of American parents. She was delivered November 13, 1921, at about the seventh month. She was toxic, edematous, and said by her physician to have kidney trouble. There was nothing abnormal in her previous history or the first six months of her pregnancy, except a history of frequent attacks of tonsillitis and an attack of jaundice at the age of 14 years. She had had a tonsillectomy performed. One month before her admission her urine began to show a trace of albumin, she developed edema, and her blood pressure began to rise. The symptoms grew progressively worse and she was admitted to Sloane Hospital, November 12, 1921. At this time the specific gravity of the urine was 1020 and the albumin 85 per cent. by gravity; there was an occasional red blood cell, many pus cells and an occasional hyaline cast. She was put on a salt-free and protein-free diet. The next morning she was given a colon irrigation and castor oil and quinine. Labor soon set in. The presentation was breech, R. S. A. After a few hours the breech and both feet presented at the vulva. Gentle traction was made on the right foot; the foot and part of the leg just above the ankle pulled off. Gentle traction was then made in both groins and when the baby was born it was seen that both groins had been split nearly to the bone. As soon as the baby was born the cord broke about two feet from the baby's body. The child's heart was beating and it took several breaths and then died. The baby was a premature male weighing three pounds nine ounces, and was 32 cm. in length. The tissues were all edematous, very friable, and very little bony structure could be made out by palpation. The feet, legs, arms and hands were short, deformed and flattened. The placenta was large, jelly-like and very friable. The patient had several convulsions after delivery, then she gradually improved, her blood pressure dropped, and her urine gradually returned to normal. The autopsy findings were reported in detail and also the microscopic findings in the placenta.

Dr. L. T. Le Wald said that bony defects were exceedingly interesting. He did not think they were specific; he thought the history of this case bore that out. One must differentiate osteogenesis imperfecta from achondroplasia which was a peculiar type of bony development and which was also not specific: both these conditions were sometimes confused with syphilitic conditions. Dr. Le Wald said he regretted that the microscopical study of the bone had not been made, and hoped that some light on the etiology of the condition might result from it. The radiographs showing the healing of the fractures *in utero* were exceedingly interesting, and was a condition he had not seen before.

Dr. Harvey Clock Williamson cited a case somewhat comparable to this. This patient, a para III, was delivered at the eighth month. She showed general edema before delivery and had six convulsions postpartum. In this instance the neck of the fetus was broken and there was a fracture of the humerus but no radiograph was taken. The postmortem examination of the fetus revealed acute degeneration of the kidneys, liver, and spleen. The Wassermann reaction was negative. In a general way the case was quite comparable to Dr. Halsted's.

Primary Sterility: A Study Based on 400 Cases.—Dr. Abraham Rongy presented this communication, in which he asserted that the reason relatively few cases of sterility were cured was because our entire conception of the etiology an dtreatment of primary as well as relative sterility was entirely erroneous. The mechanical theory of sterility was untenable. The organs of internal secretion had been held responsible for almost all the ills human flesh was heir to and had been held responsible for sterility too. Every sterile woman had been given all sorts of organic extracts. It was soon found, however, that they were falling far short of the claims made for them. If we blindly accepted the theory that the organs of internal secretion were responsible for sterility, we should again be led astray for another thirty years, and in the meantime our attention would be detracted from the true causes of sterility in the largest number of women. During the last decade the men's share for the responsibility for sterility had, in his experience, undergone a great change. In a paper published in 1911, he had found that the man was at fault in nearly 50 per cent. of the cases, and this coincided with the experience of a number of observers at that time. In the present series it was less than 11 per cent. It seemed from this that the educational campaigns that had been conducted by the medical profession and the various public health agencies were just now beginning to bear fruit. In investigating the male aspect of the question many interesting points were brought out from the academic standpoint, but he felt that they were of no practical value. In the light of our present knowledge a man must be pronounced well if a condom specimen showed fully formed and viable spermatozoa. A number of the patients in this series were inseminated—the semen being lodged high in the uterine cavity—but not one of them became pregnant. The failure of conception in these cases seemed to indicate that something was wrong higher up. If the problem of sterility was to be solved at all it would have to be investigated from a purely biological and chemical standpoint. A great many women who were sterile had practically the same developmental characteristics; they were short, fat, stocky, and gave a history of menstruating very irregularly. These women were studied from the standpoint of anatomical defect of the bony pelvis. Unfortunately the findings were negative. In a selected group of women and their husbands the blood was typed; there was no material difference in the grouping between the sterile couples and those who had one or more children. It was found that those patients who gave a history of having developed sudden and severe pain during the second or third day of their menstruation three or fours years after puberty, were more likely to be permanently sterile. Inquiry was made into the possible relationship of the exanthematous diseases and sterility. There seemed to be a greater prevalence of sterility among women who during their infancy or childhood had troublesome throat infections, also that women who had had scarlet fever, complicated by severe kidney disturbances, were not so likely to be sterile as those women who had simple uncomplicated scarlet fever. While it was a highly speculative suggestion, something might take place during an attack of scarlet fever or diphtheria which prevented the ovary from properly developing and possibly at the same time caused permanent structural changes. The fact had been brought out that sterility was very often temporary in nature and that in a certain number of women some readjustment took place and pregnancy ensued. No marriage ought to be considered sterile until after two years. Dr. Rongy said he could not help feeling that displacement of the cervix played a very small rôle in the etiology of sterility. The only findings of more or less importance were: (1) The small infantile body of the uterus, that was narrow from side to side, and usually associated with a small conicle cervix, and frequently found in women who were fair. (2) The large, hard body of the uterus, with a long, hypertrophied cervix, and a history of rather profuse menstruation, which was usually found in the tall, masculine type of women. To him such findings indicated an unfavorable prognosis. If these patients were left alone, some of them would have a better chance to become pregnant, for the various operations performed on them often resulted in the closure of the Fallopian tubes, causing permanent sterility. The patient in whom one found a small, cord-like body of the uterus must be severely left alone. Plastic operations on the tubes held out very little hope for the cure of sterility.

Those patients whose tubes had been closed as the result of gonorrheal infection often had a better chance if they were not operated upon. It was still a mooted question whether to operate on patients who had fibroid tumors. If he found the tubes open he did not advise operation on these women. If, however, the tubes were closed, nothing would be gained by deferring operation. Of 52 patients who had had dilatation of the cervix and the insertion of a stem pessary for the purpose of correcting and enlarging the cervical canal, eight became pregnant, one while the steam pessary was in place, the others remained sterile. Permanent enlargement of the cervical canal in his experience did not occur after a stem pessary operation. There were many other objections to the stem pessary. Ovarian tumors in women who were sterile should be removed as soon as possible, because the tumor might act as an irritant to the other ovary, and by an early operation one might be able to save a part of the ovary which was less involved, and had not as yet been destroyed. Three patients in this series suffered from vaginismus. The classical Pozzi operation was performed and they became pregnant shortly after. The real problem that confronted them in the treatment of sterility was in that group of patients which practically presented no anomaly of the genital tract, except possibly a moderate degree of flexion or version. Dr. Rubin's method of insufflation for the purpose of ascertaining the patency of the Fallopian tubes had changed the entire status of sterility and its treatment. For practical purposes all patients who suffered from primary as well as relative sterility could be classified into two general groups: (1) The clean group or patients who suffered from sterility due to some constitutional disturbance. (2) The unclean group who were still suffering from an inflammatory condition in or about the pelvis. At the Lebanon Hospital, during the past twelve months, they had made 152 examinations by this method. If oxygen was used not more than 300 c.c. should be introduced. If carbon dioxide was employed a greater quantity could be introduced. In this series of cases 90, or 59.2 per cent., were positive, that was, air appeared in the abdominal cavity; in 62, or 40.8 per cent., no air was present in the abdominal cavity. When air passed into the abdominal cavity through the tubes they might be considered patent from the standpoint of mechanical obstruction to the passage of the spermatozoa. However, the Fallopian tubes might be plugged by some inflammatory exudate or some mucogelatinous substance, and still permit the passage of gas under pressure, yet, without artificial distention of the tubes the plugging might act as a barrier to the passage of spermatozoa. The contraindications to this method of examination were acute infections of the vaginal or pelvic organs; it must not be used in the presence of chronic infection if the patient complained of pain. It should not be employed when the menstrual period was about to appear. Patients who had heart disease should not be subjected to this examination. This method of examination should be used in every case in which the sterility was of doubtful origin. Four patients did not menstruate after the insufflation and upon examination were found to be pregnant. He did not believe the occurrence of pregnancy in these patients was purely accidental, but that probably the force of the gas either expelled some mucous plugs or straightened out any kink that might have been present. The treatment of sterility consisted chiefly in the art of being able to select the patients who were likely to respond to treatment. Those patients in whom one found congenitally defective organs ought to be left alone.

Dr. HARRY ARANOW expressed the opinion that Dr. Rongy, in his paper, had practically covered every important point in this wide and intricate subject, so as it was difficult to take up every point for discussion he would just take up the cases in a group. He was younger in experience if not in years, so he was more hopeful than Dr. Rongy. To his mind sterility might be considered in two main groups, namely, those in which the cause was evident, such as cases of dyspareunia, vaginismus, marked stenosis of the cervix, and those in which the cause was difficult to ascertain, or causes were found, such as obstruction in the tubes, maldevelopment or chronic disease of the ovaries, which interfered with ovulation without giving any palpable physical signs. To him the reason we had failed to cure sterility was because we had failed to put our finger on the underlying cause. Dr. Rongy said cases which had remained sterile for two years after marriage might be considered sterile. He did not think we could consider a patient sterile until three years after marriage. A great many women even without prevention would not conceive for two years after marriage. He thought we should allow three years before deciding that a woman was sterile. Some cases with anteflexion of the cervix were cured by dilatation. He had the same feeling about retroversion if it was not caused by an inflammatory process. The cases in which the sterility was due to inflammatory process were rather hopeless, but those in which no inflammation was present were sometimes helped by reposition and operation. He had the same hopeful feeling about fibroids. A woman of over forty recently consulted him, not because of sterility, but for fibroids which were causing pain by pressure. At operation he found five or six fibroids, some intramural, and a small uterus. That woman became pregnant and was delivered without difficulty, though four or five incisions had been made in her uterus. He felt that those cases of sterility which had evidence of being caused by retroversion, or ovarian cyst, or fibrosis, or stenosis, ought to be given the benefit of operation, for some of them might be helped. Of course, before operation they should be thoroughly investigated by Dr. Rubin's insufflation method, a procedure which was very simple and foolproof. The examination might be made under the fluoroscope in the office, and then one could answer the question as to the patency of the tubes at once. One of the most complicated questions we had to consider was sterility. We could examine the cervix and the uterus fairly well, but when it came to the tubes and ovaries it was more difficult, and the question of endocrine imbalance might have something to do with the sterility. This method of insufflation should be made a routine procedure, just as one examined the husband every time before undertaking to operate on a case. One point Dr. Rongy brought out should be emphasized and that was that the gas might go through places where a spermatozoon could not pass through.

Dr. HERMAN LORBER believed they were probably all of the opinion that prophylaxis had its field of usefulness in the cure of sterility. The general custom of the young graduate providing himself with a set of curettes as his first instruments and using them when and where infection was very likely might be a contributing factor to so many cases of acquired sterility. The eugenic test of the male and the cured chronic conditions of the prostate would also help to eliminate future possible cases of sterility. In cases of undeveloped uteri much had been done with endocrines and Dr. Hirst had cited cases treated with the galvanic current in which the uterus was almost doubled in size following his treatment.

Dr. WILLIAM P. HEALY stated that Dr. Rongy had shown that we now had available a very important method of clearing up the question of the patency of the tubes by means of Dr. Rubin's method by the injection of oxygen, and by the method of Dr. Cary of Brooklyn with salt solution. The question of the patency of the tubes had been a problem to all who had to deal with sterility in the female. As Dr. Aranow had said, if we had something in the individual case that was pathological it was well worth while relieving it in order to place the patient in as nearly normal condition as possible before giving up. In regard to the question of using the stem pessary which Dr. Rongy discouraged, he believed it was a valuable form of treatment in dysmenorrhea and stenosis of the cervical canal, and in sterility, not only because it acted as a dilator but because the cervical canal remained dilated thereafter, and also because it helped in the development of the uterus. It acted as a foreign body; the uterus made an effort to expel it, and in spite of the fact that the pessary might be sutured *in situ* one would find it exceedingly difficult to make the pessary remain in place because the uterus would tend to expel it. That meant the uterus had been undergoing mechanical massage, which caused it to increase in size and it was better for the pessary having been there. Of course,

putting a stem pessary in an inflamed uterus was another thing. The cases must be properly selected. Cases of dysmenorrhea were sometimes permanently cured by the stem pessary. As to myomectomy in cases of sterility, he had not had good results. Very few had been benefited so far as the sterility was concerned. Occasionally one patient would be cured, but they were so few that they might be ignored. It was better, however, to do a myomectomy, no doubt. Dr. Rongy's paper brought out the necessity of knowing the condition of the tubes before instituting an operation for sterility. He stated that 60 per cent. of the cases examined had clean tubes and only 40 per cent. showed pathology needing treatment. That had been his experience; in cases of sterility approximately 60 per cent. would be apparently normal and the husband was also normal. It was only in a small proportion of the cases in which pathology existed that one could succeed in curing the sterility by operation.

The Values of Various Methods of Bone Grafting Judged by 1390 Reported Cases.—From an analysis of this series of cases Clarence A. McWilliams finds that there were 82.3 per cent. of successes with 17.6 per cent. of failures. In the order of successes there were with bone pegs 95.8 per cent. successes; with the osteoperiosteal method (Delagenière), 87.3 per cent. successes; with the end-to-end method (without inlaying), 82.5 per cent. were successful; with the inlay method, 80.9 per cent. were successful; with the intermedullary method (Murphy), 76.6 per cent. were successful; with the combined intramedullary (at one end) and the inlay (at the other), 60 per cent. were successful. The presence or absence of periosteum seems to exert no influence on the success of bone grafts. Proportionately, the percentage of successes without periosteum is the same as with. In the end-to-end method, there were 18 per cent. more successes than failures without periosteum, and in the inlay method, 9 per cent. more successes without periosteum than with, while, on the contrary, with the intramedullary method, there were 13 per cent. more successes with grafts with periosteum than without. No explanation is offered as to the cause of the differences with the various methods. Suppuration occurred in 121 cases, or 8 per cent.; 32 per cent. of these succeeded. The conclusion is reached that the most successful method of bone grafting is by the osteoperiosteal method (Delageniere). The bony defect should be filled in with small bone chips, and on one or two aspects, overlapping the ends of the fragments, covering in the bone chips, should be placed one or two strips of periosteum with adherent, osseous plaques, taken from another bone. This method is as applicable to large as to small bony defects. From four to six months' immobilization is ordinarily required for complete success. There is sufficient evidence to prove that the most effectual treatment of non-union fractures is bone grafting. The causes of failure are improper method of grafting, suppuration, insufficient immobilization, or over too short a period of time, fracture and dislocation of the grafts, atrophy of the ends of the bone to be grafted. The intramedullary method of grafting should be discarded. Bone grafting should not be performed, the author warns, in infected fields. —*Annals of Surgery.*

Saccharose in the Production of Fixation Abscess.—Hasenbein injected 50 per cent. sterile glucose solutions into the buttocks of girls with gonorrhea. The amount injected was 3-5 c.c. and novocaine was added in strength of 1 c.c. of a 2 per cent. solution. In most of the subjects a pronounced focal reaction followed. There was also a sort of reaction in the genitals and joints and an improvement in the condition.—*Schweizerische medizinische Wochenschrift.*

Cultivation of Variolous Vaccine.—Despite the fact that no organism has yet been isolated the virus can in a way be cultivated indefinitely on rabbit brain. After eight months of such cultivation inoculation of infants caused very mild pustular lesions of a constant virulence and without the drawbacks of ordinary preserved lymph. As a practically pure culture it should find a limited use among those able to pay the price.—*Le Progrès Médical.*

Medical History.

MY FIRST PATIENT.

By JOHN T. METCALFE, M.D.,

NEW YORK.

[THE following case report was written on the last fly leaf of his first ledger by the late Dr. John T. Metcalfe, then of 785 Broadway, New York, on June 27, 1845. Its publication in the MEDICAL RECORD is through the courtesy of Captain Henry Metcalfe, the author's son.]

As it is not at all impossible that I shall tire of this book,* before the number of my patients compels me to use this page as a record for visits paid and fees to come, I think I'll make it useful, by recording the particulars of my first office call.

Sitting alone, I was agreeably roused from my solitude and Braithwaite's Retrospect, by a ring, which I, somehow or other, felt to have been executed by the left hand of a patient, while his right superior extremity pleasantly depicted itself to my fancy as being engaged in extracting that "V" which was to do its share toward rewarding me for the six long years spent in arduous study, toiling to acquire my profession.

Allowing a decent interval to elapse, I walked with assumed gravity and composure to open the door, Peter having been detailed to execute some commission, in University Place.

With the salutation of conscious ability and that inexpressible benevolence of countenance which marks the truly philanthropic physician, I asked the suffering son of Adam, who presented himself, to enter my sanctum—to be seated, and expressed, in properly guarded terms, my great gratification at seeing him, in my house, a visitor.

"Doctor Metcalfe, good afternoon, sir, how do you do, sir? I have taken the liberty of calling on you. I hope you are well, sir?"

I should have premised that "my friend" was a man of middle age, of respectable appearance and of a certain bearing which gave me to understand that he had been accustomed to the forms of good breeding. To his hopes, regarding my health, I made a proper reply, assuring him that my state of salubrity was unequalled, implying, that mind and body were quite prepared to attempt and go through with anything.

"Doctor, I wish to state my case to you, as it has caused me a great deal of embarrassment."

"My dear sir," said I, soothingly, "make no ceremony with me, but speak out, frankly."

"Well, doctor, about eighteen years ago, I had the misfortune, in a youthful frolic, to contract a gonorrhea. I was a good deal alarmed at the time, and wishing to get rid, as soon as possible, of my trouble, I applied to Dr. Ralph, you know him, sir, a sort of quack who advertises. Well, sir, he treated me, as he said, to stop the running and stop it he did, but the consequence was terrible. One day I found, to my great regret that I was suffering from stricture. This lasted with me for a long time, until I was astonished and alarmed, one day while urinating, to find a spirt of urine fly up into my face, through a fistula which had formed near the root of the penis. There was, afterwards, infiltra-

*His virgin ledger.

tion of urine, which caused great suffering and ended by the sloughing of part of my scrotum."

"Indeed, sir," interposed I, "you must have suffered a great deal."

"That I did, sir," continued he. "I was forced to abandon my occupation which was that of translator of German and Danish and interpreter. I forgot to mention, doctor, that my name is —— (some hard one which I do not remember). I am from the neighborhood of Copenhagen where my relations are respectable persons and well to do in the world. I have received a liberal education.

"As I was saying, this deprived me of my means of gaining a livelihood for a time, though I had no ultimate fears of not being able to get plenty of remunerating employment. I had means of entering the City Hospital, where Gurdon Buck performed an operation which relieved me of my infirmity, but in order to prevent the closure of the orifice through which the urine came, I was obliged to make use of a catheter of gum elastic. Soon after, I was obliged to empty my bladder, every half hour or hour, during the day, but I did not mind that, as I was at work again, in a situation which gave me five or six hundred dollars a year, and for a frugal bachelor, you know, that is enough."

"Quite," rejoined I, "for one of your pursuits, who, as you appear to be, is temperate."

Here I already imagined myself with the sum that *must* pay for two volumes of Forbes' review and might purchase half the set.

"Now, sir, for two months I have been troubled with incontinence of urine. It dribbles away, continually and is so offensive, in warm weather, that I frequently am obliged to change my clothes three or four times a day. Now, doctor, this you must see, is a most loathsome complaint, especially as I am often invited to stay with a friend who has a family of young ladies, grown up (his daughters) whom I am afraid to approach, on *that* account, I wish to see, doctor, if you could do something for me."

"The resources of our art," said I, "are great, and we must try what can be done for your relief, my dear sir. It is wrong to bid any one despair, let us hope for the best and trust that time and proper treatment may relieve you of what, I feel, must render your life most uncomfortable."

"Doctor, I have been obliged to go home to change my clothes *four times* today, I called to see
If you could give me a cast-off pair of breeches."

Work of the American Red Cross in Europe.—According to a recent report from Paris, an American Christmas was celebrated this year at 500 Red Cross child-health stations in a dozen European countries, but this relief work has reached its final stage, except in Russia, and the middle of the coming year has been fixed for the withdrawal of the last medical and relief units of the American organization. While there are still many children suffering from malnutrition and under-nutrition in central Europe, it may be said that there is practically no starvation in the same sense as has been reported in Russia. General health conditions throughout central Europe also provide food for optimism. With the exception of the ordinary infectious diseases, such as scarlet fever and diphtheria, which are endemic throughout Europe, there is comparatively little infectious disease. Cholera, which has assumed alarming proportions in Russia, has not crossed the border, except in a few isolated cases. Typhus occurred widely in Poland, Slovakia, and the Balkans during the post-war period. It will be endemic in these countries for some years to come, but at the present time it is mild in form and is rapidly being brought under control. Tuberculosis increased enormously during the war period. In children it is seen chiefly in the form of bone and gland tuberculosis, which is apparently much more common in Europe than in America. Since the armistice there has been a gradual but steady fall and, though the percentage is still above normal, the steady improvement continues evident. There are no outstanding epidemics of smallpox, typhoid, or recurrent fever this winter. In the Balkans, malaria and intestinal parasites are still abnormally prevalent. The most serious disease, particularly among children, is anemia, due to long-continued malnutrition, but the number of children suffering from severe grades of this disease is decreasing. Rickets, due to deficient diet during infancy, has claimed many victims in all the central European countries, and for years to come there will be very pressing need for orthopedic treatment to correct resultant deformities. Hospitals, medical schools, and dispensaries are all having a very difficult time to exist.

Vision Defects of American Children.—According to the Report of the Hoover Committee on the Elimination of Waste in Industry, approximately a fourth of all the school children of America suffer from poor eyesight, and the proportion of defective vision increases in the higher grades. The principal eye defects disclosed by the investigation are farsightedness, nearsightedness, and astigmatism. Of 175,153 children examined in New York public schools, 17,888, or about 9 per cent., suffered from defective vision. Examination of 92,552 school children in Boston public schools showed 11,899, or nearly 13 per cent., having poor eyesight. In Pennsylvania 17.9 per cent. defective vision was found among 469,199 rural school children examined. Just 26.6 per cent. of 1,625 pupils examined in Orange County, Virginia, were found with defective vision, and 5.1 per cent. of the cases were serious. Only 19 states, including New York, require the testing of school children's eyesight. Five cities, New York, Minneapolis, Cleveland, Milwaukee, and Rochester, have eye clinics in the public school system. The New York clinic corrected eye defects of 8,789 children in one year. In only three states, New York, New Jersey, and Colorado, is it possible to proceed against parents to compel them to take care of their children's eyesight. These recommendations are made for the improvement of a disturbing national trouble: Enactment of laws compelling parents or guardians to comply with notices to provide refractory aid for children with poor eyesight. Extension of eye clinics and conservation of vision classes to all cities and into the rural schools. Codification and unification of all State laws regarding defective vision. Enactment of sane measures, compelling eye tests in public schools.

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Original Articles.

THE NON-OPERATIVE TREATMENT OF URETERAL CALCULUS.

BY LEO BUERGER, M.D.,

NEW YORK.

SINCE the development of special methods of attacking ureteral stones through the cystoscope, the attention of urologists has been focused on the treatment of stones impacted in the lower pelvic ureter. Little mention has been made of a more important phase of therapy which concerns itself with the treatment of calculi situated anywhere in the ureteral path, and from the very onset of the symptoms. Some of our most eminent authorities in recent contributions seem to accept the view that Nature should be permitted to expel a ureteral calculus without instrumental aid. It has been said that in the absence of intense and recurring pain lasting for some time, or in the absence of complications in the kidney, such as acute cortical or perinephritic lesions, or in the absence of urinary retention sufficient to damage the kidney, one can well afford to await spontaneous expulsion of the calculus, provided it is not too large to pass; and, that as a rule it is best to allow a stone less than two centimeters in diameter to pass spontaneously.

Little can be found in the literature bearing upon the advisability of the application of the cystoscope as a therapeutic measure from the very beginning of the clinical history.

If I may anticipate by presenting the thesis of my present paper at this juncture, I would state that cystoscopic intervention is advisable in almost all cases of ureteral stone within a short period after the stone has found lodgment in the ureter in its descent from the kidney.

This view is somewhat at variance with that of clinicians and even some urologists, who out of conservatism have been wont to counsel their patients to wait weeks or months for the stone to pass. Whilst on the one hand there are those who intervene too early in a case of descending ureteral stone, as well as in a case of renal calculi, there are others, who withhold all methods of treatment, except merely symptomatic medical care. If it can be shown by clinical, surgical, and pathologic observation that it is a fallacy to wait altogether for spontaneous expulsion of calculi in the ureter, my hypothesis that cystoscopic treatment should be given early in the clinical course will find substantiation. Such a view has been arrived at, firstly, by reason of the most satisfactory results obtained by the application of the author's special cystoscopic methods for facilitating the descent of ureterel calculi, and secondly, in a review of the outcome of those cases in which such treatment had not been applied.

To accept the dictum that calculi one centimeter or more in diameter, even to a diameter of two centimeters, are often expelled spontaneously by Nature, is a generalization that is fraught with considerable danger to the individual case, although true in many instances. For, a sense of false security is thus very easily inculcated. So many are the complications in the ureter and kidney, and so great is the danger of impaction and local growth of the calculus, that we feel convinced that many of the cases in which ureterotomy or some renal operation has become necessary would have escaped either one or both of these procedures by the timely application of the methods that I shall describe later. Even though it be true that a stone of considerable size may occasionally pass spontaneously without aid, our aim should be directed toward the prevention of the complications (which I shall discuss further on), and toward expediting the downward travel of the calculus in its course through the ureteral channel.

It may be accepted as proven by cystoscopic researches that certain transitory or even permanent lesions are wont to accompany the majority of attacks of so-called ureteral colic. These are the purely mechanical results of obturation of the conducting system with retention of excretion products in the pelvis of the kidney and ureter and consequent infection.

Hydroureter and Hydronephrosis.—The rôle of retention of urine in the production of colic has not been correctly appraised, since it has been generally believed that the mechanical effect of the descent of the ureter stone, either from the kidney into the ureter, or down the ureter, was sufficient cause, either by virtue of the spasm created, or by the mechanical destructive effects on the inner surface of the ureter, to account for the symptom of pain. If one, however, makes a practice of performing a cystoscopy on a large number of cases of ureteral colic or renal colic during the attacks, one will be surprised to learn that not only acute pain, but persisting severe pain in the lumbar ureteral region is in most instances due to the distention of the pelvis of the kidney and ureter with retained urine.

The immediate lesions as well as the complications can be best combated by the establishment of drainage through the ureter alongside of the calculus. It is by the cystoscopic methods to be described that such reestablishment of the continuity of the conducting channel can be brought about. In other words by certain conservative cystoscopic pro-

cedures, we aim not only to further the passage of the calculus, but to conserve a sufficiency of drainage, thereby diminishing or even obviating the dangers of renal infection.

The necessity for more active interference rather than the expectancy, advised by some, is based on the following facts:

Firstly, ureteral calculi more than one-quarter of an inch in diameter are frequently arrested in certain well known narrow portions of the ureter where they become permanently incarcerated, the blockage produced leading to dilatation of the ureter, dilatation of the pelvis of the kidney, secondary infection and destruction of the renal organ.

Secondly, even small stones over two-sixteenths of an inch in diameter and occasionally three-sixteenths may be similarly arrested. We are not able to prognosticate in which instances such permanent halting with blockage will take place.

Thirdly, by the passage of one or more ureteral catheters of varying sizes, or by the simultaneous passage of bougies and catheters, or bougies alone, ureter drainage can be established and a definite effect produced upon the descent of the stone.

Fourthly, even large stones (one centimeter or more in diameter) can be attacked by the above and other methods.

Fifthly, the timely introduction of ureteral catheters can be demonstrated to be most effective in the prevention of complications of the kidney.

Sixthly, the emptying of the distended renal pelvis by reason of ureteral blockage by stone is a most reliable means, not only in relieving the suffering of the patient, but also in conserving the integrity of the kidney, which might be otherwise irremediably damaged.

In addition to the above reasons for cystoscopic intervention, there are other symptoms that often require relief. And this cannot be obtained by the use of drugs, either morphine, benzyl benzoate, or other means. The employment of the ureter catheter, however, is a most remarkable and effectual measure which we recommend early in the clinical course of the malady.

The acute symptoms that may make a demand upon our resources are unusual degrees of retention of urine in the kidney, repeated colic with or without fever, symptoms of intestinal obstruction and anuria. It is self-evident that when colics are repeated and become insufferable (usually due to the large amount of retention in the affected kidney), and if there be fever, either aseptic or due to infection, the renal pelvis must be emptied as soon as possible, and cystoscopic methods must be applied.

But it is also in the subacute and chronic forms of the malady that we advise the early introduction of instruments into the ureter. It is perhaps only in those mild attacks with or without hematuria, which are due to concretions or very small stones, that we advise waiting. Here the patient may be allowed to undergo *x*-ray examination after the acute symptoms will have subsided and if this is negative, be permitted to wait for a recurrence of the symptoms. But even here, if the attacks be repeated, the patient should submit to cystoscopic examination and treatment. In the very mild cases, if the hematuria is severe, and if the pain recur within a short period or be continuous over more than twenty-four or twenty-eight hours, cystoscopy is also in order. Even in mild cases, when there is fever or other suggestion of infection, one should not wait longer than twenty-four or forty-eight hours before introducing a catheter into the ureter.

In all cases where the attacks are unusually severe, persistent, with the presence of rigidity or a renal mass, with or without complications, such as fever, intestinal obstruction or suppression of urine, it will not be wise to procrastinate.

Varying Degrees of Hydronephrosis and Hydroureter: As before mentioned, the usual sequence of ureteral obstruction due to stone is dilatation of the conducting system above the obstacle implicating the ureter and renal pelvis. In fact, most of the symptomatology is due to this dilatation, particularly when pain is intense, and the urinary secretion continues. In rare instances, after a certain degree of stretching of the renal pelvis and ureter has occurred, unilateral inhibition of secretion takes place. Relief is often the result and thus not due to abolishment of the obturation. Or, as the kidney ceases to secrete, the retained fluid gradually leaks alongside of the stone or is absorbed, and a small kidney is the result. This, however, is not the usual outcome, and we are usually confronted with the mechanical effects of hydrostatic pressure, which afford a problem both for the relief of symptoms and relief of pathology.

The ordinary course of events, when a stone becomes impacted in the ureter, is an attack of pain with ballooning of the ureter and pelvis until the pressure becomes so great that urine may find its way between the calculus and the ureteral wall, and spontaneous relief is obtained; or, by virtue of the pressure and repeated colic, the stone passes to another or lower portion of the ureter, and in its descent, permits of evacuation of the retained renal contents. In both ways amelioration or disappearance of the pain is brought about.

All will admit that therapeutic measures will find application in the acute attacks of retention. There is, however, another type of subacute, or more or less chronic retention of urine above the calculus, whose clinical course does not seem to have been appreciated by the clinician because of the paucity or absence of symptoms in many of the cases.

In short, accumulation of secretory products may occur to varying extents, either (1) leaving remediable alterations in the kidney and ureter, or (2) eventuating in irremediable effects, depending upon the duration of the hydrostatic pressure.

1. *Remediable Forms of Distention.*—Dilatation of considerable duration (weeks or even months) is apt to respond to drainage with the ureter catheter. The absence of symptoms in many of the cases may mislead us into a casual disinterested attitude toward the application of remedies, and often it is only when there are exacerbations of pain or attacks of infection that the true nature of the changes that are going on in the kidney and ureter is appraised, and therefore an estimation of the conditions above the calculus should be arrived at by the proper cystoscopic measures. When the long duration of the distention of the kidney and ureter has led to marked pathological lesions, with atrophy of the renal cortex, the opportunity for a restoration to normal will have been lost.

An excellent example of more or less chronic dilatation of the pelvis and ureter in a case of stone impacted in the lower ureter, is afforded by the clinical history of this patient, in whom the existence of a dilated pelvis would have been overlooked, had not the cystoscope been frequently applied.

Moderate Hydronephrosis with Calculus in Lower Ureter Reduced, and Treated by a Ureter Catheter.—H. K., male, had an attack of left renal colic two years previously. He had been well until one month ago when he had an attack of renal colic with blood in the urine and pain in the left lumbar region radiating into the bladder.

Cystoscopy, November 16, 1916. The right urinary tract was negative. In the *left ureter*, 2 cm. above the bladder there was an obstruction which was finally surmounted, followed by a sudden gush of urine, more than 40 c.c. being collected in a continuous stream. After thorough evacuation of the pelvis of the kidney, pyelography was done, and a typical hydronephrosis demonstrated with a moderate degree of dilatation of the pelvis and calyces. A shadow was found about 3 cm. from the bladder, corresponding to the situation of the obstruction.

In spite of the advice given the patient to have the renal pelvis emptied at least once a week or oftener if necessary, he did not present himself for examination until the 18th of December, 1916, about one month later. Cystoscopy revealed the fact that the left renal pelvis contained about 25 c.c of retained urine, which was completely evacuated after the catheter had been allowed to remain in situ for one hour. A second catheter was passed up alongside of the first, which caused considerable dilatation of the ureter and permitted the stone to descend.

Examination March 12, 1917, exploratory cystoscopy, to determine whether the obstruction still existed. The catheter passed without interference, and no retained urine in the kidney was found. Subsequent *x*-ray examination failed to reveal the presence of the stone.

This case, as well as others of this type, permits us to draw the following lessons:

1. Chronic states of hydronephrosis may result from leaving the expulsion of the stone to Nature alone.

2. Interference with the cystoscope and employment of catheters to drain the kidney and to stimulate the passage of the stone by dilatation of the ureter, are valuable and reliable means not only in combatting the distension and restoring the pelvis and the kidney to normal, but also in furthering the passage of the stone.

3. The case described demonstrates conclusively that an interval of one month is too long to wait for cystoscopic treatment.

4. If the course of this case be compared with others in which treatment had been more frequently applied, it will be noted that the restoration of the renal pelvis to normal capacity was usually accomplished in much shorter time.

5. The absence of symptoms must not make us believe that the kidney is emptying itself.

6. It may only be during attacks of acute swelling of the ureter about the stone with increasing distension, or with the advent of mild degrees of infection, that attacks of colic are noted, the patient feeling well in the interim.

Two types of clinical course are encountered; those cases in which there is more or less constant pain, where intervention of some sort is usually demanded for relief, and secondly, those insidious types whose manifestations may be absent. Absence of pain, therefore, must not be interpreted as indicative of the absence of hydronephrosis.

Therapeutic Conclusions.—1. Treatment with the ureter catheter should be given so as to prevent chronic hydronephrosis, both by emptying and dilating the ureteral channel, even if this does not move the ureter calculus.

2. In every instance of positive calculus obstruction demonstrable either with the *x*-ray or with the cystoscope, cystoscopic treatment is in order, unless the stone is immediately passed within 24 to 72 hours.

3. Attacks of pain are usually an indication of retention of urine.

4. Continuous pain usually indicates complete retention.

5. The absence of pain after one or more attacks of ureter colic does not imply the absence of renal distension, for chronic distension may exist with rare attacks of exacerbations, the latter manifestations being the only ones that arouse the interest of the patient.

6. Treatment should be given in the free interval, particularly if data are at hand that suggest that retention is present.

Ureteral calculi requiring ureterotomy and renal drainage. Many are the instances in my own experience in which I have been convinced that the timely application of the cystoscope immediately after or during the first attack of renal or ureteral colic, would have prevented infection of the kidney and avoided the necessity of operative procedure. Let us analyze a single example.

Small ureteral calculus impacted in the lumbar ureter, with renal infection, infected hydronephrosis; ureterotomy, nephrotomy, recovery.

Three attacks of renal and ureteral colic in a young woman, (L. L.), the first three months previously in the left lumbar region, radiating to the pubis and lasting two days; the second, six weeks ago with fever, lasting three days; and the third, four days before examination with temperature as high as 102°.

September 12, 1921, cystoscopy demonstrated obstruction at 20 cm. from the left ureteral orifice in the bladder, a No. 6 French catheter being too large to pass. A smaller catheter drained off a test tube full of purulent urine, and was allowed to stay in situ for fifteen minutes so as to drain the kidney, (*Bacillus coli* in the urine).

X-ray examination showed considerable enlargement of the left kidney, and between the third and fourth transverse processes a small shadow less than ¼ inch in diameter, doubtless a stone in the ureter.

In view of these findings, an obstructed ureter, an infected kidney above, a history of three months' duration and the temperature, operation was advised, although another attempt to drain the kidney and mobilize the stone was suggested. With temperatures ranging from 100° to 101.4° while at the hospital from the 12th of September to the 14th, another cystoscopy was done on the 14th together with *x*-ray examination, the calculus being found well imbedded in its previous situation.

Operation September 14, 1921, revealed a large kidney with edema of the perinephritic fat particularly about the lower pole of the kidney, the kidney bluish, cyanotic and adherent. The ureter was at once located and lifted up with the finger, the calculus brought into view, being tightly incarcerated in a small ureter. The ureter was distended at the site of the calculus, its wall being tensely stretched, pale and almost whitish. A clamp covered with rubber tubing was applied above the stone so as to prevent the escape of purulent urine. A small incision was made, and the calculus extracted. One suture was applied. While this was being done, the clamp slipped inadvertently. A gush of pus through the opening in the ureter followed, demonstrating that the pelvis of the kidney was

filled with thick, purulent material. Then a small button hole nephrotomy was done to drain the kidney, the capsule of the latter being stripped; uneventful recovery.

Epicrisis and Conclusions.—This case teaches us that a small calculus well within the size that can be made to pass by cystoscopic methods, can remain in the lumbar ureter for weeks or months without passing, and be complicated within three months from the time of its impaction, with infection of the kidney, necessitating an extensive operation.

2. The fact that the catheter was able to pass a short distance beyond the stone, even after three months, would indicate that more could have been accomplished at an earlier moment.

3. The prevention of overdistension of the renal pelvis by the timely use of the catheter would doubtlessly have contributed at least toward the prevention of infection of the kidney, even though the two catheter method of the author had not been previously successful in causing the complete expulsion of the stone.

4. Small stones, particularly in the upper lumbar ureter, are just as apt to become incarcerated and be complicated by infection of the kidney as large ones, and it is these, therefore, that should be attacked early, so as to facilitate their descent.

5. Infection of the kidney in my experience, as a complication of stone, both as to severity and frequency of occurrence, varies inversely as the distance between the stone and the kidney increases; so that, the greater the distance between the stone and the kidney, the less the chances of severe destructive and infectious influences on that organ. Therefore, every attempt should be made to further the passage of the stone to a part of the ureter in which complications in the kidney are apt to be less extensive and less severe.

Other Complications.—These may be divided as follows: (1) Marked hydronephrosis with secondary infection. (2) Infections of the non-hydronephrotic kidney. (3) Rupture of the hydronephrosis or pyonephrosis. (4) Perinephritic abscess. (5) Dilatation of the ureter. (6) Sclerosis and stricture of the ureter. (7) Secondary stone formation in a dilated ureter or in a ureter above a stricture. (8) Periureteritis and periureteral abscess with or without ureteral perforation.

Time will not permit me to give a comprehensive account of the variegated pathology in both kidney and ureter that may result from the retention of impacted stone in the ureter. Suffice it to say here that the finding of extensive hydronephrosis with secondary calculus formation and subsequent infection, necessitating nephrectomy some time in the clinical course is a most common complication. Nor must we lose sight of the infections that may occur in kidneys that are small or very slightly dilated, for even these are prone to attacks of pyelitis, pyelonephritis and multiple abscesses as also suppurative infarctions, when the obstacle in the ureter is not removed. We have encountered a large number of hydronephroses and even pyonephroses with rupture, the patient presenting himself with a large perirenal exudate of urine and pus.

Occasionally a perinephritic abscess will be diagnosticated clinically, where investigation will demonstrate infection through a dilated kidney, the ureter stone having been wholly overlooked. Moderate and extensive dilatations of the ureter are so common as to require but passing mention. However, where marked and indelible alterations have impeded the conducting system, these must needs lead to grave changes in the whole corresponding tract. The ureter behaves differently, according to the degree of obstruction and type of infection.

Thus, there are cases where the ureter is found enormously attenuated and dilated, and in other cases the dilatation is but moderate and the sclerosis and fibrosis of the ureter wall are marked. Such sclerosis may take place not only about the stone, but above it; when in the neighborhood of the stone it not infrequently leads to subsequent stricture formation, and the whole urinary tract may be compromised by a relatively minute lesion.

By virtue of the ureteral changes, dilatation, sclerosis, and stricture, retention of urine with puddling takes place, leading to secondary stone formation in the narrowed portion of the channel.

Periureteritis is exceedingly common in the pelvic portion of the ureter, leading to the formation of large sclerotic masses of fat in which the ureter is tightly imbedded, forming a mass which in itself plays a deleterious influence upon the ureter as a conducting mechanism. In the lumbar portion of the ureter we not infrequently encounter the formation of periureteral abscesses, particularly when perforation of the ureter takes place.

Methods of Preventing Complications of Ureter Stones.—The title of this paper has called for a discussion of methods of preventing the complications of ureter stones. Such prophylaxis is tantamount to the application of the most improved measures for expediting the passage of ureter stones, and for relieving the kidney and ureter of the effects of distension and infection. The methods that have given me the best results during the last ten years may be summarized as follows: (1) The employment of catheters and bougies in the ureter; (2) the use of olivary dilators; and (3) instrumental intravesical procedures to remove calculi from the intramural portion of the ureter by incision through the cystoscope or otherwise.

Much has been said regarding the removal of impacted stones through the cystoscope, and vague and general statements are encountered in the literature regarding the mode of manipulating instruments in the ureter for the expulsion of ureteral stones. Success, however, depends upon careful attention to minutiæ as well as to general principles, and I may, therefore, be permitted to go into detail as to the technic and procedure that have given me the best results. Let me say at the outset, that one should look askance upon the claims of those who would possess such unusual skill and such highly specialized cystoscopic instruments as to enable them both to seize and extract a ureteral calculus when it lies above the bladder. Not only do I believe such statements to be gross exaggeration, but I wish to go down on record as expressing the view that any radical means sufficiently intensive to extract by force an impacted calculus within the ureter above the bladder is not only incompatible with the mechanical possibilities in the bladder and ureter, but if possible, would be dangerous to the integrity of this channel.

Those who have had an opportunity to operate upon many cases of ureter stones, will appreciate what force is necessary to bring about even a milking of the stone from one part of the ureter to another, when the channel is within one's grasp. To be sure, those calculi amenable to conservative treatment may not be imbedded so tightly. But even these require the more delicate procedures, those whose action is slow in bringing about dilatation of the ureter, and such as are successful by reason of the very tardiness of their action.

It will not be possible, here, to go into every phase of the application of my methods, because of lack of time. Enough, however, shall be said to elucidate the chief points that are essential in the treatment of the usual type of cases encountered. Two large classes may be recognized: (*a*) Cases with a calculus in the lower pelvic ureter (true pelvis), (*b*) with the stone in the lumbar ureter or in the false pelvis.

The Treatment of the Ureteral Calculus in the Lower Pelvic Ureter.—1. By means of catheters or bougies: The armamentarium requisite for aiding the expulsion of ureteral stone varying in size up to 1 cm. and even ½ inch in diameter is in most instances a simple one, and comprises a cystoscope, ureter catheters of sizes from 4 to 7 Fr. caliber, ureteral bougies in sizes of 3 and 4 Fr. and a garceau catheter tapering from 11 French to a terminal opening of about 5 Fr. It is only for certain special cases that are recalcitrant, and do not respond to the author's catheter method, that the operating cystoscope, special olivary metal tipped bougies, punch forceps and scissor forceps are required.

So, armed with an ordinary catheterizing cystoscope in which one No. 6 catheter and a No. 5 catheter of the olivary style have been threaded, the affected ureteral orifice is sought. With the stone in the intramural portion, or near the orifice, distinctive changes will be observed, such as swelling of the ureteral mound, and even edema of the ureteral orifice. But with the calculus at its most frequent location, that is, 3, 4 or 5 cm. from the bladder, no visible alterations of the intramural portion of the ureter and ureteral lip are usually in evidence. In many cases, however, careful attention to the ureteral mound when the stone is as low as this will reveal a slight protrusion of the corresponding portions of the bladder wall. A large ureter catheter (No. 6 Fr.) is introduced and the findings and procedure will depend upon whether an obstruction is met or not.

A. Calculus With Obstruction: An olivary-tipped catheter must be used, since the whistle tips or other types of catheters may encounter artificial obstructions that are not due to the presence of a foreign body. With the stone in this situation, the catheter will meet with an obstacle which is either surmounted or not (passable or impassable).

Procedure in the case of Passable Obstruction: When the catheter meets the obstruction, it is rotated on its long axis, withdrawn and introduced again if necessary, and will then finally surmount the obstacle and drain out urine which has been retained in the ureter and pelvis above. After evacuating the contents of the ureter and pelvis, the catheter alone may be allowed to remain in place from ½ hour to 1 hour, the cystoscope being removed, or, an attempt is made to pass the second catheter beyond the obstruction. This may or may not be feasible, depending upon whether the orifice is large enough to admit the catheter, whether the patient is sufficiently tractable, and on whether the obstacle will permit the second catheter to go by. If one catheter alone will pass, this should be allowed to remain inside for at least ½ hour, preferably 1 hour or more, and then removed. If pus be found in the kidney specimens, irrigation with mild silver nitrate solutions, such as one to one thousand, or one to five hundred, is in order.

The proper time for a second treatment of this sort varies according to a number of factors: first, a recurrence of acute colic with retention of urine; and second, the advent of a second attack with continuous unremitting pain, with or without infection. Infection is never seen as the result of cystoscopic manipulations.

If no such complicating conditions arise, a second treatment may be undertaken one week after the first, or earlier, an attempt being made to accomplish more and more at each sitting.

The Two-Catheter Method: This is the method *par excellence* when applied sufficiently often and in the proper way, for expediting the passage of a ureteral stone. Either at the first séance or at the second, it will be possible by the proper manœuvers to pass two catheters into the ureter beyond the stone. In some instances it may require a great deal of patience, and we will be unable to accomplish our purpose until the third or fourth séance. Eventually, however, with the application of the correct technic, two No. 6 Fr. catheters, or one No. 6 and one No. 5 will be made to pass, and it is from this time on that quick progress will be made in causing the descent of the calculus, if some has not already been made in the previous procedures.

It will often be observed that the second catheter, which may be a smaller one, will at times pass only as far as the obstruction and no higher. The injection of olive oil or glycerin may aid its passage, as well as the lubrication of the catheter tip with sterile vaselin. Or, if we wish, a small amount of adrenalin oil may be injected, admixed with 2 or 4 per cent. novocain (five to ten drops)—methods which, if used alone, are far inferior in their efficacy to the mechanical procedures. Until the second catheter passes, we should repeat the leaving of one catheter *in situ* for an hour or more, and cause dilatation of the intramural portion of the orifice by the graded use of two catheters of varying size or with a bougie. When finally we have succeeded in passing the two catheters beyond the obstacle, these should be introduced sufficiently high, twenty-five centimeters or more, so that in withdrawing the cystoscope, they may not be dislodged into the bladder. With the cystoscope removed and the two catheters *in situ* beyond the stone, the patient is carefully transferred to a stretcher carriage and allowed to remain there with the catheters draining from one-half hour to an hour or more.

The removal of the two catheters is also an important step. Both catheters should be pulled out simultaneously. As they are being withdrawn, considerable resistance may be encountered, so that at

times some force may be necessary to extricate them. Indeed, by some sort of chemical process, the nature of which is hard to explain, agglutination of the catheter and the stone can and does take place, as a number of remarkable circumstances have taught me. It is by friction, however, that I believe the downward course is usually accomplished.

As the catheters are being still further withdrawn, we may in rare instances encounter another obstruction. The calculus agglutinated to the catheters in reaching the ureteral or urethral orifice may give rise to this sensation. In several cases the stone was immediately dislodged from its site of impaction in the ureter. In one case (L. B.) the calculus was drawn out through the urethra attached to the catheters, these having been allowed to remain *in situ* over night. In another instance the calculus was broken up, which is a rather frequent result, and several fragments remained firmly adherent to one of the catheters, the rest of the stone having been withdrawn into the bladder. In other instances, the stone was displaced into the bladder, where it was removed with the forceps of the operating cystoscope.

Through the author's operating cystoscope, or through the direct cystoscope provided with the author's operating telescope, more than two catheters can be inserted into the ureter if necessary, Number 6 Fr., and a smaller catheter, or several filiform bougies. In the employment of the latter, care must be taken to inspect their points carefully, so that they may not be broken off in the effort to cause them to pass beyond the obstruction. Where the two catheters will not pass, the filiforms will gradually make way for the first one to surmount the obstacle, after which subsequent manœuvers are easy.

The following most unusual and interesting example of acute symptoms, associated with stone in the ureter, beautifully illustrates the value of the retention of two catheters in the ureter, and how in one treatment the stone may be extricated.

Impacted obstructing ureteral calculus, dilated ureter and renal pelvis, with manifestations now of intestinal obstruction, of peritonitis, with fever, abdominal distention, rebound tenderness, completely relieved and cured through cystoscopic methods by causing expulsion of the stone.—L. B., male, presented the following clinical picture: A distended abdomen, constipation, severe pain in the left iliac fossa, rigidity of the left iliac region, distinct rebound tenderness and per rectum a small indefinite mass, high up in the cul-de-sac on the left side, and moderate fever.

Cystoscopy, October 4, 1919, demonstrated that there was urinary retention in the left ureter and kidney, for about one ounce of turbid urine, containing some red blood cells, without pus, could be collected in a continuous stream when a catheter was inserted some 10 cm. into the ureter, suggesting a calculus low down in the ureter, with dilatation of the ureter and acute hydronephrosis.

In spite of the relief that was afforded in this case by the emptying of the kidney, distinct aggravation of the symptoms occurred on the following day, when the temperature rose to 102° in the afternoon. It was surmised that by virtue of the swelling of the ureter, obstruction had again taken place, so that catheterization of the ureter was again in order. On the following day, October 5, the tongue was coated, the left side of the abdomen was hard, with board-like rigidity, the temperature 103°, and the patient was unable to take food. In short, symptoms suggestive of a combination of intestinal obstruction and possibly peritonitis.

On the 6th of October, therefore, catheterization of the left ureter was done again, and the same phenomena of retention of urine could be demonstrated. So great was this retention that pressure over the kidney and bladder regions, as well as over the left iliac fossa, increased the flow through the ureteral catheter. Two ureteral catheters were then inserted into the left ureter up to the kidney and the cystoscope removed, *the catheters being allowed to remain in from the time of insertion, 3 P. M. on October 6 until the next morning, (9.30 A. M.).*

On the 7th of October, the abdomen was distinctly less rigid, the patient's condition considerably improved, the temperature having dropped to 100°. The catheters were then slowly withdrawn simultaneously, and as they were being tugged, it seemed that an obstruction to their exit could be distinctly made out. *As they were pulled out, this resistance was seen to be due to the extraction of a ureteral calculus that was tightly adherent to the two catheters, as it was drawn through the ureter, bladder and urethra without being dislodged—a most remarkable and unusual occurrence.*

From then on the patient made an uneventful recovery.

Such a startling result can only rarely be obtained, but the extrication of the calculus, either immediately upon withdrawing the catheters or shortly thereafter has occurred so frequently in our experience as to permit us to consider this the most valuable of all the procedures.

Ureteral Stone with Infection. Where a ureteral stone in the lower pelvic ureter is associated with infection, usually of the *Bacillus coli* type—the question of operative intervention may have to be considered. Usually, however, the methods described, or with slight variation, will suffice to cause the symptoms as well as the infection to subside. Whereas most patients may be treated in ambulatory fashion, at the office, and allowed to remain one-half hour, one hour or more with the catheters *in situ*, it is best to keep the patient with renal infection in bed at the hospital, where the catheter is allowed to stay in a longer period of time—two to ten hours, as a rule. Silver nitrate irrigations of the renal pelvis are recommended both after evacuation of the pelvis as well as before removing the catheters.

B. The Nonpassable Obstructions: What may appear to be an insurmountable obstruction in the ureter will by the application of correct methods, and with patience, develop into a passable obstruction. The technique is as follows. The ureter below is injected with oil or glycerin, with or without adrenalin and novocain. One catheter is introduced and followed by a bougie of small caliber, 3 or 4 Fr., or one or more bougies, or whalebone filiforms are passed up the ureter with the view to passing the barrier, just as is our custom with filiform strictures of the urethra. When this fails, we still have recourse to dislodgment by means of the olivary dilators, which I shall describe later on. It is but in rare cases that our patience and persistence are not rewarded by the passage of one catheter and finally a second one beyond the stone.

Intervals Between the Séances. As before mentioned, it is our rule to give treatments at weekly intervals, where the following complicating factors are absent: rapidly recurring attacks of pain, persisting hydronephrosis and hydroureter, infection, suppression of urine or reflex ileus. Any of these eventualities may require precocious intervention with the cystoscope. Otherwise it is well to wait, five to seven days (as a rule a week), before repeating the treatment.

The Results of the Two-Catheter Method of Treatment: Four types of results are obtainable. Firstly, renal drainage with dilatation of the ureter but without immediate descent of the stone; second, immediate movement of the calculus downward; third, immediate expulsion of the calculus after treatment either with the calculus attached to the catheters; or, by the spontaneous evacuation of the calculus with micturition, or followed by removal from the bladder through the operating cystoscope; and fourth, expulsion, shortly, few hours to a day, or more after the last treatment.

Technique for Dilatation of the Intramural Portion of the Ureter: Occasionally, after several treatments, if the stone has made considerable descent, and if it has approached the wall of the bladder, near the beginning of the intramural portion of the ureter, it is advisable to have recourse to special manœuvers for the purpose of dilating this portion of the ureteral channel. To accomplish this, we make an attempt to cross the catheters in the ureter and simultaneously engage them against the ureter stone. The special manipulations employed are the following: After the introduction of the second catheter, the first one is withdrawn somewhat and reintroduced. Then a similar manœuver is carried out with the second catheter. These procedures are repeated until we find that by simultaneously pulling upon both catheters with the ureter orifice in view, the catheters instead of pulling out in the line of the ureter is made to diverge. In doing so the ureter orifice is forcibly dilated. This effect is produced not only at the orifice, but throughout the ureteral wall, and, occasionally, such force can be exerted upon withdrawal as to actually produce a downward movement of the stone. In a few cases the stone was made to pass through the intramural portion of the ureter by this method, *and seen to emerge under the guidance of the eye.* As a rule, however, the effect is not so striking and accomplishes merely the dilatation of the lower ureter, with or without immediate appreciable movement of the calculus.

The Treatment of Calculi in the Lumbar Ureter.—The problem here is somewhat more difficult, for, not only is the impaction apt to be less easily surmounted but, also, because a small calculus may be occasionally caused to move back into the pelvis of the kidney. However, the general methods employed are the same, except that greater care must be exerted to refrain from withdrawing the catheters as the cystoscope is removed.

Use of the Author's Olivary Dilators: This method was suggested by me some nine years ago. It employs a bougie electrode whose proximal end is furnished with a screw thread and whose distal end is provided with a coupling for connection with the high-frequency machine. The screw end allows of the attachment of small olivary tips, of varying sizes from 5 to 15 Fr. The bougie is introduced through the operating cystoscope into the ureter, whose lumen is gradually dilated by the successive employment of olives of increasing size. Originally the d'Arsonval current was suggested as an adjuvant, although more lately it has been found that as good results can be obtained without the use of electricity.

This method is applicable under two conditions; firstly, when the two-catheter method fails to coax the stone beyond a certain point, and the lower ureteral channel is too narrow; and secondly, in the case of larger stones, particularly when these have been imbedded for a considerable period of time.

The olivary dilators are exceedingly efficacious, not only in dislodging a calculus that has been well incarcerated, but the dilating effect produced is valuable. We anoint the olive well with vaseline so as to make introduction easier, and attempt not only to reach the stone, but gradually to insinuate the olive beyond the stone, which it will frequently pass. When carefully used and rotated on their long axis, as soon as an obstruction is reached, and if the calculus with a little patience on the part of the operator. In my experience I have never encountered any deleterious results from the application of olives. Many are the instances of calculi (1 cm. or more in diameter) that had been arrested in a lower ureter for months that have been made to pass by this method.

Large Ureteral Stone Impacted Four Inches from the Bladder Made to Pass by the Use of Olivary Dilators.—A. G., male, 57 years of age, had had attacks of left renal and ureteral colic for about five years, with frequent hematuria. He consulted me October 10, 1916, with a history of having had pain in the left flank and ureteral region for several months. On that day *x*-ray examination demonstrated a calculus over the left sacroiliac synchondrosis, three inches lower than demonstrated in 1914, a period of two years.

In all probability this passage was accomplished during one attack, so that it is fair to assume from the history that the calculus had become impacted at the base of the sacrum for some time.

October 27, 1916, *x*-ray examination showed a calculus almost two centimetres by less than one centimetre over the sacroiliac synchondrosis, about four inches above the bladder, in the course of the left ureter. Cystoscopy demonstrated an obstruction in the left ureter between nine and ten centimeters from the orifice, and no urine was obtainable from the corresponding kidney. A shadowgraph catheter inserted identified the shadow as being in the ureter. One week later at cystoscopy one catheter was made to pass beyond the calculus.

November 16, 1916, dilatation with olivary bougies to 11 Fr., and a No. 9 Fr. olive passed beyond the stone to a distance of about 20 cm. thus dilating the ureter considerably. *X*-ray examination showed the olive beyond the situation of the stone.

December 5, 1916, dilatation with the olives again, the stone having descended somewhat.

December 14, 1916, stone still further down, approaching the true pelvis. The ureter orifice was dilated sufficiently for the stone to pass. This stone was passed spontaneously shortly thereafter.

Special Intravesical Operative Procedures.—When a calculus of considerable size (approaching one-half inch or more) has been arrested in the intramural portion of the ureter for some time, particularly when it has caused protrusion and marked edema of the ureteral lip, it presents a problem for solution with the operating cystoscope. With the author's punch forceps and scissors the upper lip of the ureter can be incised and the stone then dislodged. It may then be grasped with the forceps and directly removed or manipulated out with catheters and bougies.

An interesting example of a stone one-half inch in diameter which had been impacted for some time in the intramural portion of the ureter and was made to pass after incising the upper ureteral lip is worthy of citation:

Ureteral Meatotomy for Impacted Ureteral Calculus.—S. B., female, age 52, consulted me on the 8th of November, 1920, with a history of attacks of right renal colic for about eight years, accompanied now and then with chills and fever. Cystoscopy showed a moderate degree of cystitis, the right ureteral mound tumefied, the orifice small and its appearance suggestive of a stone just behind the orifice. It was possible to introduce a ureteral catheter with considerable difficulty beyond the stone, but unable to dislodge it. An *x*-ray examination confirmed the diagnosis of calculus by the finding of an ellipsoid shadow about three-eighths of an inch by one-half inch at a point corresponding to the situation of the stone as diagnosticated at cystoscopy, that is, just above the orifice.

On November 12, 1920, the stone was still in the same situation, and the question of operative intervention was considered in view of the fact that the orifice was so small that the passage of such a large stone through it was considered out of the question. However, it was decided to cut the orifice and fulgurate the margin of the incision with a view to stopping the hemorrhage. This was carried out on the 12th of November, when catheterization was found impossible. Immediately after the cutting of the orifice, the stone was partly visible, although still fairly imbedded in a pocket of mucous membrane, and due to the irritability of the patient it was decided to wait until the following day before making further attempts to dislodge it from its bed. This was not necessary, since the patient passed the stone spontaneously soon thereafter.

1000 PARK AVENUE.

THE MORTALITY FROM BILIARY AND URINARY CALCULI IN THE UNITED STATES REGISTRATION AREA.

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THIRD VICE-PRESIDENT AND STATISTICIAN, THE PRUDENTIAL INSURANCE COMPANY OF AMERICA.

THE following statistical observations are merely in explanation of three standard charts exhibited in the Scientific Section at the Annual Meeting of the American Medical Association, Boston, June, 1921. The charts were prepared in cooperation with an original investigation into the subject by Dr. L. D. Keyser, of the Mayo Clinic, Rochester, Minn. They have been amplified by international data for such countries as conveniently provided the necessary information within the limitations of time available for the purpose.

Chart A exhibits the geographical distribution of biliary and urinary calculi in the United States Registration States and the six principal geographical divisions of the country. The mortality is also given separately for ages 30 and over; the mortality for ages under 30 being relatively of no importance. It is shown by this table that the mortality from biliary calculi has been highest in the State of Minnesota, and from urinary calculi in the State of Utah. The Minnesota figures are unquestionably affected by the Mayo Clinic, but there are reasons for believing that when proper allowance is made for this factor the relative position of Minnesota will not undergo a material change. It is significant that in both groups Oregon and Utah should hold a position of preeminence next to Minnesota.

Leaving out of consideration the individual States, however, the analysis shows that biliary calculi as a cause of death occurs most frequently in the Central States, followed by the Rocky Mountain States, while a middle position is held by the New England States and the Middle Atlantic States, the fatalities being least common in the Pacific Coast States and the Southern States. The incidence from urinary calculi is highest in the Middle Atlantic States and the Central States, a middle position being held by the New England States and the Rocky Mountain States, while the lowest figures are for the Pacific Coast States and the Southern States. The favorable position of the Pacific Coast States is much more significant when the preeminence of Oregon is taken into consideration, this State holding second position for biliary calculi and third position for urinary calculi.

It is not intended that these figures should be looked upon otherwise than as a tentative contribution towards the geographical study of biliary and urinary calculi in this country, but the regularity of the data is certainly suggestive of local conditions more or less favorable or opposed to a high or low incidence of the two affections.

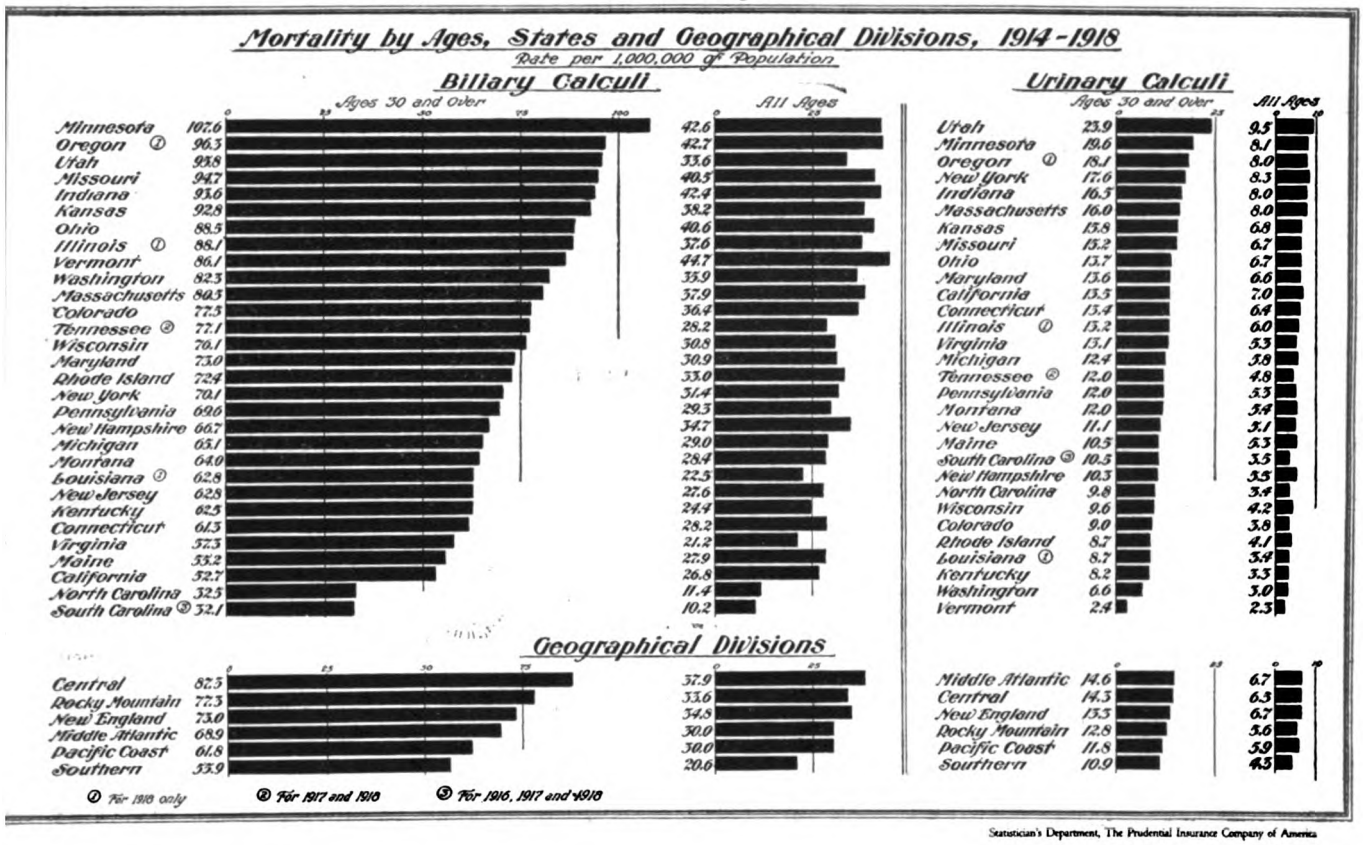
Considered by sex, race, and age, some extraordinary differences are brought out by Chart B, which presents the consolidated data for the United States Registration Area for the five years ending with 1918. This table re-emphasizes the well-known fact that both biliary and urinary calculi are more common among the white population than among the colored. I am not aware that a corresponding analysis has heretofore been made which would justify definite conclusions useful for prognostic purposes.

Chart C presents the statistics for foreign countries and cities, indicative, also, of a range of local frequency which may properly be referred to as extraordinary. Limiting the present discussion to the larger foreign cities, it appears that Berlin has the highest rate of frequency for biliary calculi, while the lowest rate is reported for St. Johns, Newfoundland. There are no reasons for questioning the returns, especially for such cities as Belfast, Barcelona, Singapore and St. Johns, all of which indicate a tremendous difference when compared with the returns for Berlin, Copenhagen, Alberta and Manila. Of similar interest is the extremely high rate of urinary calculi for Victoria, B. C., given as 26.2, while for the same city the mortality from biliary calculi is only 5.2. Copenhagen and Manila hold a preeminent position as regards an excessive frequency of both biliary and urinary calculi, which is also true of Montreal and Edinburgh.

The contrast between the two series is very striking, particularly as regards the excessive frequency of biliary calculi in Tasmania and the comparative rarity of urinary calculi in the same country. England and Wales holds a preeminent position in both instances, while relatively high positions are held by New Zealand and Scotland.

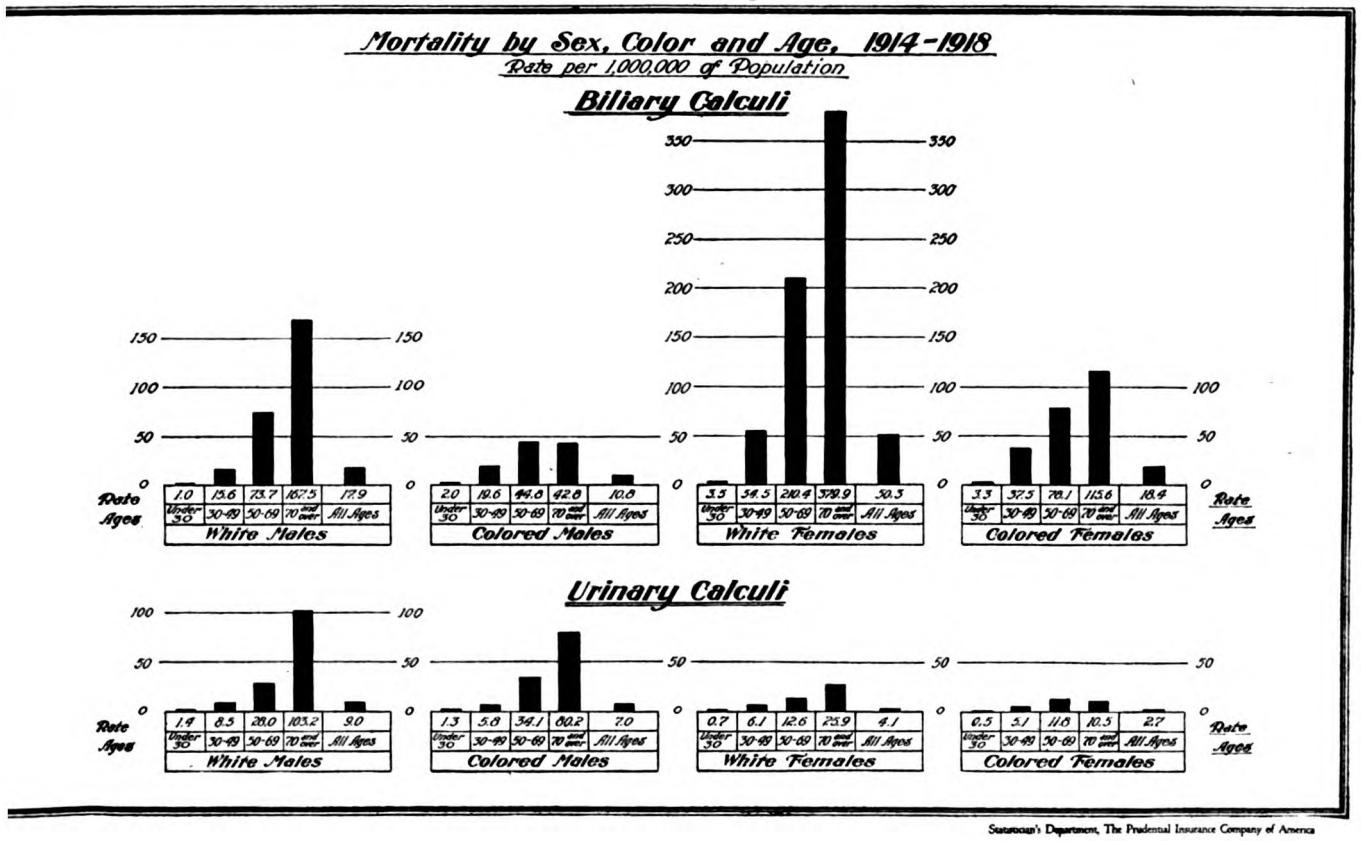
How far these differences can be explained on account of local conditions—possible chemical properties of the water supply, or other environmental factors—can not, of course, be stated at the present time. It may be said, however, that there are no reasons for believing that there is serious inherent inaccuracy in the figures which would make a local or an international comparison inadvisable at the present time. The data are certainly suggestive of a much more extended consideration of the geographical aspects of these two

Mortality from Biliary and Urinary Calculi
In the United States Registration States



Statistician's Department, The Prudential Insurance Company of America

Mortality from Biliary and Urinary Calculi
In the United States Registration Area



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diseases than has thus far been given to the questions involved, and are also, as a matter of race pathology, indicative of possible far-reaching results if subjected to further and qualified inquiry.

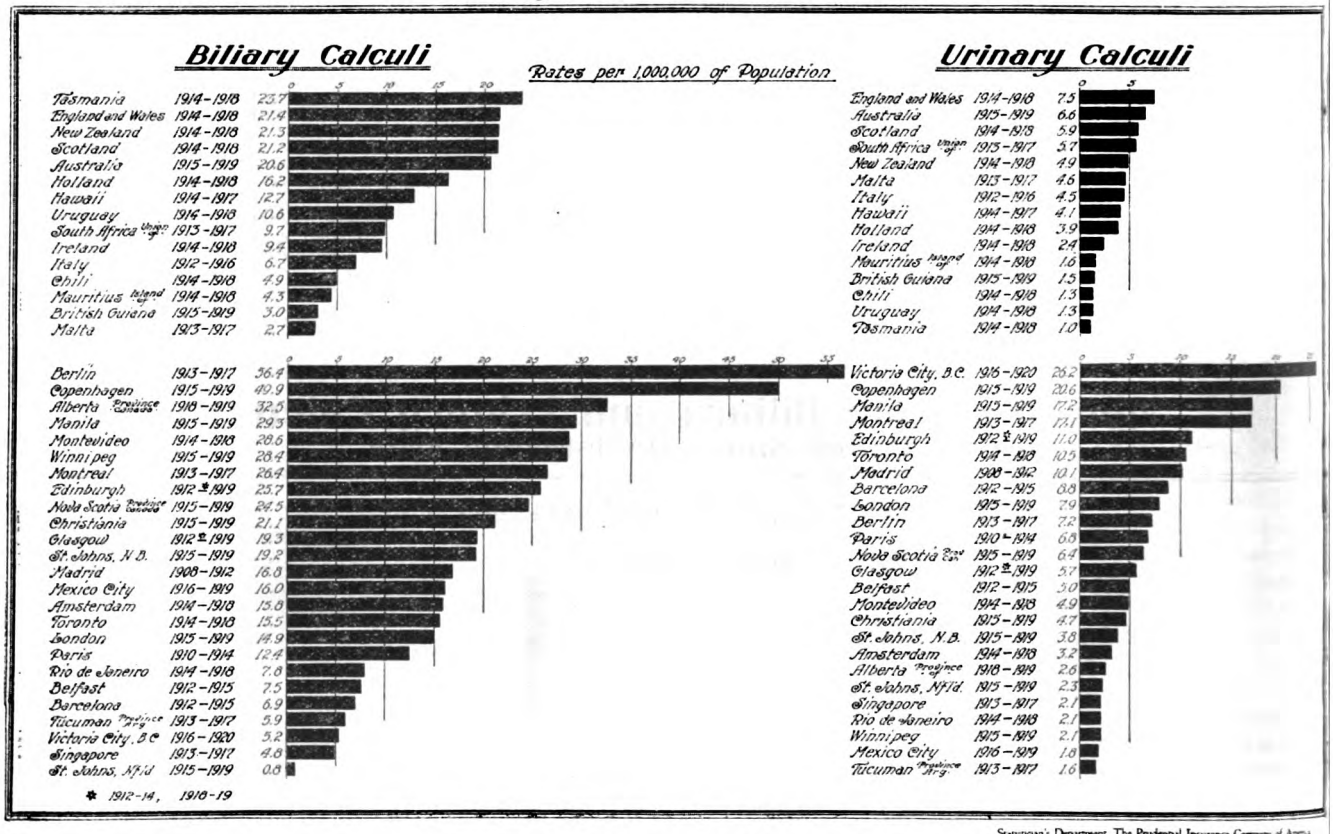
The question naturally arises as to how far these statistics are affected by methods of death classification. In its final analysis, practically every case of biliary or urinary calculi, in the absence of an operation, involves the possibility of an erroneous diagnosis as merely a biliary or urinary disease. I have carefully considered this question on the basis of the joint causes investigated by the Census Office for the year 1917. For urinary calculi that year there were reported 496 deaths in which calculi of the urinary tract was given as a primary cause, while in 379 deaths it was given as a contributory cause, and in 128 deaths it was listed as a secondary cause. It is, therefore, inadvisable to rely entirely upon death certificates as conclusive evidence of the local incidence of the disease, since the method of classification by a single statistical standard is likely to vary more or less widely in different countries of the world, but such a conclusion would certainly not apply to Berlin, which returned the highest known rate for biliary calculi, or 56.4 per 1,000,000 of population, while for London there was a return of only 14.9 per 1,000,000 of population. Likewise, for Copenhagen the mortality from urinary calculi was returned as 20.6 per 1,000,000 of population, while for Berlin the corresponding rate was about 7.2 and for London 7.9 per 1,000,000 of population. No differences in death certification can account for a difference in a mortality from urinary calculi of 17.1 for Montreal and 3.2 for Amsterdam.

With reference to biliary calculi, there were 2,475 deaths returned in the United States Registration Area in 1917 with this disease as a primary cause; 1,641 deaths with this disease as a contributory cause, and 813 deaths with this disease as a secondary cause. The analysis of these contributory and secondary causes reveals a large amount of important information, which, however, can not conveniently be dealt with at the present time. The information can readily be obtained by reference to the Mortality Report of the United States Census Office for 1918.

The present investigation, which is merely tentative to a further inquiry, is submitted as a contribution towards a question which has received far from adequate consideration. As shown by the joint causes, the disease is more common than would appear from the mortality records, while the fact must not be overlooked that there is an immense amount of life-saving as a result of qualified operations.

The subject of calculus is an extremely complex medical and surgical problem which would require wide experience for its discussion as regards aspects as yet but imperfectly understood. The differential diagnosis of the condition clearly illustrates its complexity, and the practically countless possibilities of error in the interpretation of the facts and related phenomena. The duration of the condition has never been properly determined on the basis of a sufficiently large number of cases.

Mortality from Biliary and Urinary Calculi
Foreign Countries and Cities



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while much remains to be learned as regards the after-results of operations. Most of the published statistics of operative results fail to square with the law of large numbers for, obviously, in so important a group of conditions Israel's cases, for illustration, numbering only 124—with 28 deaths—can not be more reliable than Garceau's cases, numbering 143—with 33 deaths. Brasch recorded a primary death-rate of 11 per cent. in the experience of the Mayo Clinic, but the number of cases operated upon was not stated.

It would serve a most useful purpose if a collective investigation was made into the whole question and, if any way possible, the rejection experience of representative life insurance companies utilized to determine the after-lifetime of persons declined on account of operations for biliary and urinary calculi. In Short's Index of Prognosis it is said that "The remote results of operation upon kidney growths are to a large extent dependent upon an early date of operation and the thoroughness with which the operation is performed. Certain conditions of the growth facilitate early recognition, or militate against a timely diagnosis." This conclusion applies to all operations, but particularly to operations for biliary and urinary calculi, in which it is safe to assume that the delay intervening between onset and operation is probably on the average longer than in many other affections requiring operative interference, such as appendicitis or cancer of the breast.

The present investigation re-emphasizes the urgency of a larger basis of experience for trustworthy conclusions, for operation will become more general as the public feels assured of really helpful results.

The foregoing observations are, in part, affected by the statement made by French and Williamson in the Fourth Edition of the *Practice of Medicine*, 1910, that "More than half the cases of cholelithiasis occur in persons above forty years of age; rarely in those under twenty-five, but congenital cases have been recorded. Fully 75 per cent. of cases occur in women; 90 per cent. of whom have borne children."

The present investigation justifies different conclusions, by providing a definite statistical basis as regards the number of cases utilized. It is owing to the weakness of much of the medical evidence on disease frequency that the statistical method is quite generally abused rather than utilized to the best advantage. There is no justification for quoting percentages yielding a definite measure of probability of occurrence without a statement of the number of facts upon which the conclusion is based. In the Registration Area during 1918 there were 2,458 deaths from biliary calculi, of which 72 per cent. were deaths of women. There were 472 deaths from urinary calculi, of which 30 per cent. were deaths of women. The proportion of deaths at ages under 30 in the first group was 4.7 per cent., and 7.5 per cent. in the second group.

Saville in a discussion of the etiology of gallstones remarks that "They are much commoner after than before 50; much more common in women than in men; more common in stout persons of sedentary habits who consume a diet rich in fat and sugar, while there is frequently a history (family or personal) of gout, asthma, or migraine." They are said to be less common in hot countries.

Broadly speaking, these conclusions are in accordance with the facts and they would gain immeasurably in value if more precise data were given for the principal etiological factors of practical value in both diagnosis and prognosis.

Of importance in this connection are some observations by Jeffries and Maxwell, in their discussion of diseases in China, on vesical calculus, which is apparently met with throughout China, it being said that "nearly every center reveals from one to ten cases a year for the average hospital." There are, however, some towns where, regardless of the fact that they are well provided with medical and surgical facilities, no cases are reported. This, it is said, considering the ease of diagnosis and the painful nature of the affection, should be considered strong presumptive evidence of its rarity in those centers. China "boasts of at least two of the greatest stone-producing districts in the world, Kwangtung Province, especially in the general neighborhood of Canton, first reported upon by J. G. Kerr, and Northern Anhuei, City of Hwaiyuen, a neighborhood reported upon by Samuel Cochran. The latter district seems to extend northward towards Ichowfu, Shantung." The concentration of vesical calculi in these two sections is certainly suggestive of further inquiry.

I can not for the present further enlarge upon this interesting question, having had merely in view the bringing of the facts, as illustrated by the charts, to public attention as a subject for further and more extended consideration. The statistical details of the chart for the registration area are given in full in the appended table.

Mortality from Biliary and Urinary Calculi in United States Registration Area, 1900-1919. Rate per 1,000,000 of Population.

Year	Population	Biliary Calculi Deaths	Biliary Calculi Rate	Urinary Calculi Deaths	Urinary Calculi Rate
1900.....	30,765,618	459	14.9	116	3.8
1901.....	31,370,952	500	15.9	126	4.0
1902.....	32,029,815	668	20.9	150	4.7
1903.....	32,701,083	795	24.3	151	4.6
1904.....	33,345,163	832	25.0	154	4.6
1905.....	34,052,201	883	25.9	193	5.7
1906.....	41,983,419	1,134	27.0	227	5.4
1907.....	43,016,990	1,110	25.8	229	5.3
1908.....	46,789,913	1,275	27.2	250	5.3
1909.....	50,870,518	1,486	29.2	292	5.7
1910.....	53,843,896	1,501	27.9	329	6.1
1911.....	59,275,977	1,749	29.5	361	6.1
1912.....	60,427,247	1,793	29.7	358	5.9
1913.....	63,298,718	1,999	31.6	403	6.4
1914.....	65,989,295	2,149	32.6	442	6.7
1915.....	67,336,992	2,228	33.1	478	7.1
1916.....	71,621,632	2,438	34.0	471	6.6
1917.....	75,307,906	2,475	32.9	496	6.6
1918.....	81,868,104	2,458	30.0	472	5.8
1919.....	85,147,822	2,887	33.9	520	6.1

ENZYMES AND LIFE: WITH SPECIAL REFERENCE TO THEIR ROLE IN THE CELL.

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LIVING organisms and their constituent living cells are characteristically chemical machines. They store their energy in a chemical form and utilize chemical processes in changing food materials into a part of their intimate living structure. The living cells are of a colloidal structure, and while their

functioning is dependent upon their electrolytic as well as their colloidal structure and both the inorganic and the organic components are essential, nevertheless the dynamic, driving power which apparently introduces the "spark of life" is found in their enzymic contents. The metaphysical entelectical explanations of life are scarcely needed since the discovery of the enzymes and their functions. In fact, these long outgrown conceptions are no longer compatible with the observed facts regarding the cells and the organism of which they are a part.

Biochemical progress was rather slow at first. Lavoisier and LaPlace in 1780 demonstrated that the heat of animals, which had long been an object of wonder and unexplainable mystery, was simply a product of the slow combustion of oxygen within the organism. And they went so far as to reproduce this process artificially in the laboratory.

About fifty years later Woehler produced urea in an artificial manner outside of the body by the metameric transformation of ammonium isocyanate: $CO.N.NH_4 = CO(NH_2)_2$. Woehler thus succeeded in producing by purely laboratory methods a

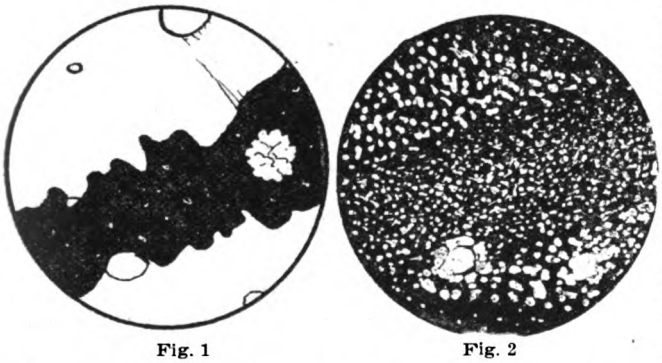


Fig. 1 Fig. 2

FIG. 1.—Spirogyra cells as seen with ordinary illumination under compound miscroscope.
FIG. 2.—Spirogyra cell with the same magnification as in Fig. 1, but with the dark ground illlumination of the ultramicroscope. Note that the colloidal particles are rendered visible under the ultra-microscope.

product which in man is an end product of cellular metabolism. These discoveries, which mark the beginning of biochemical studies and results, fell far short of establishing the identity of the processes within the test tube and those within the living organism. While the end products of the biochemical machines—the animal cells—could be produced in the laboratory it was only by using methods and reagents, which, if used in the living cell, would destroy all evidences of life. Powerful acids and akalies and extremes of heat were still necessary to produce these artificial products. In the living organism these products are formed in a medium which is practically neutral and with only the formation of moderate degrees of heat.

It was not until 1836, eight years after the observations of Woehler on urea, that Berzelius pointed out the remarkable similarity which exists between the life processes in the cells and the chemical effects of certain "activators by presence." This chemical force operative in certain reactions, and which is exerted by some substances which come out of the reaction unaltered, early received the designation of *catalytic force*. Thus it was shown for the first time that there is in fact no mysterious difference between the processes occurring in the animal cell and the somewhat related and analogous processes of the laboratory. While Berzelius' concept of the nature of the action of the "activators by presence" has been proven to be incorrect in numerous details his concept of the catalytic force still remains in substance and he must receive full credit for first indicating what may be termed the dynamic force which releases the "spark of life" in all cells, both plant and animal.

The organic catalyzers as they exist in the animal cell are designated the *enzymes*. It is through their presence and powers that chemical reactions are made possible within the living organism under temperature conditions which do not endanger the colloidal structure of the cell, and without the use of destructive acids or alkalies. These enzymes reduce complex and varying chemical substances into their common elements and then other enzymes take up these products and build up, from these cleavage products, the complex within the body. The end result is that, by and large, the tendency is to produce an approximate equilibrium with chemical processes still taking place. In general the organic enzymes are very similar to the inorganic catalysts in their activities, but there are several disparate characteristics which serve to separate into two groups what was once termed simply "activators by presence."

The cell catalyzers—the enzymes—like the cells themselves, are colloidal in nature. The body cells of the living organism are in a fluid state, but the essential cell materials are in no sense in a real solution. They are, rather, colloidal. That is, they are heterogenous rather than homogenous as is the case in a real solution. The colloidal state is characterized by solid, but minute, particles being suspended in a liquid phase. This condition is thus aptly termed heterogenous for there are indeed two phases, one solid, the other fluid or liquid. Cellular protoplasm under ordinary conditions of observation appears clear and free from a solid phase. When viewed under the ultra-microscope as perfected by Zsigmondy,[12] however, the minute colloidal particles become visible. This is splendidly shown in the accompanying illustration from Gaidukov of the cell of a spirogyra. This colloidal state is the condition in which the cell enzymes are found. The experiments of Bertrand might tend to indicate, however, that the colloidal structure in the case of the enzymes functions principally as a foundation or a protection for the inorganic constituents of the enzyme in which their peculiar catalytic powers are located. That this is not the case, strictly speaking, is indicated by Rideal and Taylor,[9] who point out further that this theory would fail to account for the specific activities of the enzymes. The more recent work of Beatty[2] attributes the dissociative powers of enzymes to their metallic colloidal content. But be this as it may, the fact remains that the grosser structure and the bulk of the catalytic material of the cell is fundamentally colloidal and organic.

Enzymes are further distinguished from the other catalysts by the specificity of enzyme action. The inorganic catalyst platinum will serve as an accelerator in several reactions. The organic catalysts, nowever, are highly specific in their action. The

enzyme lactase may be taken as an example; this activates either synthetically or by cleavage only those reactions in which lactose or its cleavage products are formed. In other reactions it has not a particle of catalytic influence. An orderly system of life processes is assured by this specificity of enzyme action. A given enzyme will carry the reaction only to a certain point when the substrate is passed on to another enzyme for further synthesis or reduction. This is illustrated in the case of the "digestive" enzymes:

(1) Protein food + pepsin = proteose.
(2) Proteose + trypsin = peptone.
(3) Proteose + peptone + erepsin = amino acids.

As is intimated above, the enzymes carry the reactions for which they are specific either forward or backward, depending largely upon the availability of water. Neutral fats in the dietary are broken down by the *lipase* of the pancreatic juices. Water is usually present and the following reaction is catalyzed:

$C_3H_5(O\,OC\,C_{17}H_{35})_3 + \text{lipase} + 3H_2O = 3C_{17}H_{35}COOH + C_3H_5(OH)_3 + \text{lipase}$.

When, however, the cleavage products glycerol and stearic acid are in the presence of lipase with a minimum of water the enzyme produces a synthetic reaction, and the neutral fat Tristerin is formed.

Very little is known regarding the chemical constitution of the enzymes. It was thought for a considerable time that the "living ferments," as found in yeast cells and certain bacterial forms, possessed their catalytic or fermenting properties largely through the fact that they were living organisms. The experiments of Buchner in grinding yeast cells and obtaining an extract which possessed characteristic enzymic qualities is proof that even in these "living ferments" the basis for their fermenting activities is in certain enzymes in the simple organisms. To date it has been impossible, however, to isolate an enzyme by chemical process. Due to their tenacious absorptive qualities they are difficult to separate in an unadulterated condition. In many instances their presence and character has to be inferred from indirect observation.

The exact nature of the action of the enzymes is still an open question. We need not be detained by the antiquated vitalistic theories of fermentation or the vibrational theory of Leibig, which was put forth in an attempt to break away from the bondage of vitalism. At present the scientific sentiment seems to favor a physical rather than a chemical theory of the nature of enzyme action. Apparently the enzymic acceleration given to certain reactions is made possible by a process of adsorption. *Adsorption* is a surface phenomenon; the compounds are formed at or on surfaces. They are not of the same constancy of composition as chemical compounds and neither are they so resistive to decomposition as are chemical compounds. A rather common example of an adsorption compound is observed in the collection of litmus out of a solution onto the surface of charcoal. Recalling that in the colloidal state, as found in living cells, there is essentially a mixture of solid particles in a liquid, it becomes apparent that here we have an ideal medium for adsorption to take place. The enzymes do not cause chemical reactions that would not take place in their absence' but by their extreme minuteness they offer a relatively large *surface area.* It is upon this vantage point, in coordination with certain other physical properties, that the substrate becomes *concentrated* by adsorption, thus permitting a more rapid reaction than would otherwise be possible.

The *electrical nature* of the enzymes is another physical factor contributing to their catalytic properties. This is of special significance in the case of the so-called antienzymes and in immunity reactions where an enzyme or other colloid is precipitated by oppositely charged colloids. The investigations of Michaelis have demonstrated that the electrical charge of the enzyme varies from enzyme to enzyme, very few being even amphoteric. Enzyme action is also influenced by the electropotential of the substrate; this fact lends more support to the contention that they act primarily by physical means.

Berzelius, the pioneer in this field of biochemistry, was of the opinion that the enzymes go through the various reactions unaltered. There seem to be a few organic enzymes, however, which apparently experience some change during their catalytic activities, although they do reach the end of the reaction restored to their original form. If the enzymes do not experience some participation and change of this sort it is rather difficult, if not impossible, to account for their gradual deterioration.

Several of these characteristics of enzyme action are of considerable biological, medical, and psychological importance. Perhaps of first importance is the reversibility of enzyme action; one enzyme serving either to synthetize or reduce compounds for which the enzyme is specific. Since the enzymes are always active, whichever reaction is facilitated depends largely upon contributing factors in the cell itself, especially the availability of water. Autolysis through which the rudimentary embryonic structures are removed and which is responsible for postmortem and pathological changes of certain sorts is due primarily to this reversibility of enzyme action in causing cleavage reactions on its synthetized products.

Autolysis or "self digestion" is present in the living as well as in the dead cell. So long as food and water are supplied constructive action occurs. Absence of food or water causes a reversal of the enzyme action. In reality then, it becomes apparent that "life keeps just a little ahead of death" in every cell.

It may be stated that in general each enzyme is specific for only a single reaction course. There are, however, a few extracellular enzymes which are still specific, but for a *variety* of foreign proteins. These are on guard against the entry of foreign proteins into the living cells.

Enzyme activity is also apparently autocatalytic. That is, products of the reactions which the enzymes facilitate serve to accelerate the reaction still further so that the process becomes, to a certain extent, autocatalytic. As a general rule, however, with a further increase in the autocatalyzed reaction products and with a change in the chemical equilibrium there is a retardation of the velocity of the reaction. In true autocatalysis the actual quantity of the catalyst is increased, as, for example, in the hydrolysis of methyl acetate in water. Free acetic

acid is formed and this serves as a catalyst and by thus increasing the velocity of the reaction it automatically increases its own bulk, since it is a product of the reaction. Increasing the amount of the acetic acid in turn increases the velocity of the reaction. Enzyme reactions, strictly speaking in this sense, are not autocatalytic since the actual quantity of the enzyme is not increased during the reaction. Practically, however, the end results are the same as in an autocatalyzed reaction.

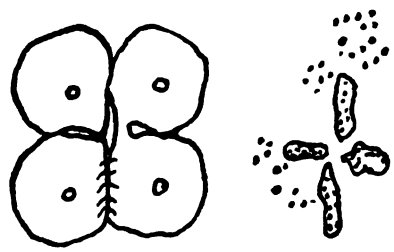
The enzymes are formed within the cell, apparently from the nucleoproteins. But, fortunately, they are usually formed in an inactive state. If it were not for this the cell itself would not be safe from its own products. The terms pro-enzymes and zymogens have been applied to these inactive enzyme forms within the cell. These forms become active immediately upon being secreted. Pepsin, for example, is formed in the secreting cells first as pepsin*ogen;* during the process of secretion it is changed slightly and liberated as pepsin. Nature has provided still further protection for her cells, however. The pepsin does not become active as an enzyme until it is in a mildly acid medium. In digestion this is provided by the hydrochloric acid of the gastric juices.

The entire metabolic activities of the living organism rest largely upon the action of the enzymes. It is through enzyme activity that the food stuffs are separated into nutritive elements in the alimentary tract. The synthesis of these elements in the tissues and cells of the animal are also dependent upon the presence and functioning of certain very specific cellular enzymes.

The rôle of the enzymes in the life processes outside the alimentary tract is usually much underemphasized if not usually overlooked. The essential metabolic and respiratory reactions occur in the cells and not in the so-called digestive and respiratory organs. And, furthermore, if it were not for the presence of certain cell enzymes, in addition to the digestive enzymes, the nutritive elements absorbed from the digestive tract and the fresh supply of oxygen received through the respiratory apparatus would not be completely metabolized. Cellular starvation, with the accompanying death of the organism, would be the outcome. The fundamental problems in general physiology and its subdivision, general psychology, are being and to be solved in terms of the processes in the cells rather than in the organs. We may take the essential processes in respiration as our first detailed example. Common observation emphasizes the importance of free oxygen to the organism. Death is very quick in the case of drowning where the oxygen is suddenly removed. Lack of oxygen also produces irreversible cell changes as is evidenced by the difficulty of resuscitation upon drowning and the more detailed observations of Loeb upon the egg of the teleost Ctenolabrus.[6] It was found by Loeb that in eggs from which the carbon dioxide was removed by a current of hydrogen and which were then deprived of a further supply of oxygen the segmentation stopped within an hour. Furthermore, if the eggs were not soon supplied with fresh oxygen they completely disintegrated.

While Lavoisier and LaPlace succeeded in showing oxidation to be taking place within the body they were unable to explain how this was possible with the low body temperature of the animal and in the relatively neutral medium presented by the body substance. It was Traube who first adequately applied the ferment concept to this process and also pointed out that the primary oxidizing processes occur in the individual cells, the blood and lungs serving principally to remove the carbon dioxide and exchange fresh oxygen for the cell gift of dioxide. This conception of the essential respiratory processes taking place in the cells received confirmation in Spitzer's[11] extraction of oxidases from the cell nucleus.

Lillie[6] experimented further along this same line. He used as staining substances in the cells materials which change in color when they are oxidized. In this way he could determine what part of the cell itself was chiefly concerned with oxidation. Lillie found that the greatest change in the color of his staining substance was in the nucleus and on the surface of the nucleus. Apparently this evidence demonstrates that the essential respiratory changes occur in the cells, and especially in the nucleus. This is what one would be led to expect from the distribution of the cellular enzymes. In the cells the enzymes are given off from the nucleus, apparently from the chromatin materials. This is the

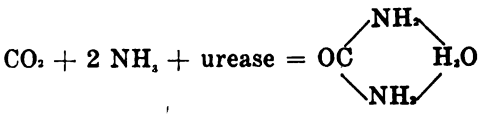


Showing the effects of deprivation of oxygen on the egg of *Ctenolabrus:* To the left, normal egg; to the right, the same egg after being deprived of oxygen for one hour. Adapted from Loeb.

"mother substance" for enzyme formation. It is only in order, then, for the nucleus to be the greatest oxidizing center since the oxidases are formed there and probably most concentrated at that part of the cell.

Oxygen is sometimes considered as supplying energy to the cells but its specific rôle seems to be to enter into the oxidizing reactions by which other energy sources are tapped. In the reduction of dextrose, for example, the presence of oxygen and of the proper enzyme will make it possible for the sugar energy to be liberated. The chief source of the energy in the cell is found in the oxidation effected in the food or food products and not in the oxygen itself. And, further, it is largely, if not entirely, by the aid of the proper oxidizing enzymes in the cells themselves that this oxidation is made possible.

Other accounts of the action of the enzymes in some fundamental life processes may be given. For example, in urea formation the poisonous NH_3 radical, which is a product of the deamination of the proteins, is rendered harmless by the synthetic enzyme urease which enables the body to be freed of the surplus nitrogen. The following formula shows this chemical process for fishes and amphibians:

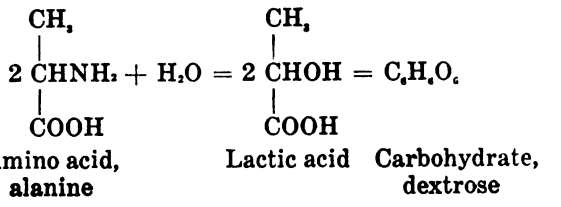


The essential processes in the conversion of food materials into a part of the living body substance are also dependent upon the action of certain enzymes. The protein food which is eaten by the organism, for example, is largely converted into the proteoses and peptones by the pepsin active in the gastric juices. As this reduced material passes through the duodendum into the intestine proper the trypsin of the pancreatic juices produces still greater hydrolytic cleavages in the ingested protein. For many years this was as far as the digestion of protein was assumed to progress—the formation of peptones and proteoses. Just how to account for the absorption of these substances, however, was extremely difficult. There is conflicting, and much negative evidence, about the possibility of them being present in or absorbed by the blood.

Cohnheim[8] was engaged in investigating the absorption of peptones and proteoses from the intestine when he observed certain facts which led to the discovery of an intestinal enzyme which he named *erepsin*. This is a peptolytic enzyme which breaks protein into its physiologically ultimate elements, the amino acids. Now compare nature's processes in this connection with those of the laboratory. In the laboratory the hydrolysis of proteins to the amino acids is accomplished only by boiling with concentrated hydrochloric acid. In the body the same hydrolysis is accomplished at a relatively low temperature and in a medium at most only slightly alkaline! But the living organism is supplied with certain enzymes which the laboratory does not possess! That makes the difference.[10]

It will be recalled that there is no positive evidence of the absorption of the peptones and proteoses by the blood from the intestine. Abderhalden[1] actually succeeded in separating the amino acids from the blood of normal subjects living under normal conditions of diet. There can be no doubt about the absorption of the amino acids from the intestine by the blood stream. The presence of small quantities of amino acids in the intestines has been known for some time. But an erroneous interpretation has usually been made of this fact. They were usually regarded as unimportant by-products. But the amino acids are in reality the food-stuffs for the cells. The various tissues build themselves up largely out of the amino acids received from the blood. This is made possible by the presence of synthetic enzymes found in the cells. Although the enzymes are highly specific a variety of compounds from so simple a chemical compound as the amino acids is possible when the large number of enzymes found in the cells of the body. For example, Hoffmeister[4] catalogues ten enzymes present in each cell of the liver. Thus several chemical activities are permitted within a single cell.

Protein metabolism is not limited to one tissue or groups of tissues; protein synthesis takes place in all organs and cells. Any surplus of protein may be eliminated from the body by deamination or the formation of urea by the formula given above. Just as protein synthesis is proceeding in all the cells of the body so all the cells are more or less active in riding the organism of surplus nitrogen by deamination; urea formation is not limited to the liver alone. Other surplus amino acids may be converted into some of the carbohydrates. This has been well established by the experiments of Lusk[7] with dogs rendered diabetic with phlorhizin. Under these conditions in the living body a change from protein to carbohydrate has been observed according to the formula:



Amino acid, alanine — Lactic acid — Carbohydrate, dextrose

Proteins taken in as a part of the dietary are reduced to the amino acids in the gastric and intestinal digestion. They are conveyed to the cell as amino acids, not as proteins, peptones, or proteoses. And they enter the cell in the form of amino acids. There they are synthetized, each cell or group of cells recombining the amino acids according to its functional individuality. Each cell or cell group does not take up all the amino acids offered it but only those for which it possesses a specific enzyme. The cell proteins are not seriously affected, therefore, by the proteins of the food. The only requirement is that complex acids be present in the dietary, since it is apparently impossible for the cell enzymes to manufacture certain of the complex amino acids from the simpler. The complex, however, can readily be split into shorter chain acids. Cellular metabolism, complete metabolism, as the one example from the proteins indicates, is dependent upon the presence of cellular enzymes almost to a greater extent than it is dependent upon the dietary.

Enzymes are also prominent in the mechanism of heredity. As has already been pointed out it is by means of enzyme activity that the rudimentary embryonic structures are removed. In embryonic development, also, it is through the progressive development of enzymes that the constant and uniform food supply is formed into differing complex chemical substances and differentiated biological structures. Since the enzymes are carried by the neucloproteins, especially in the chromatic material, it can perhaps be better understood why the chromatin seems to be the prime carrier of the hereditary characters. A chemical basis for mutations is offered in the early stages of embryonic development when a change in nutritional and some other environmental factors may induce sympathetic changes in the progressive development of the enzymes.

It would, of course, be foolhardy to make any pretense of an exhaustive presentation of the detailed functions of enzymes in the living organism in a brief paper. But it has been attempted to indicate, in their proper relation, the rôle of enzymes in some of the vital processes, and the relation of enzymes to some of the things which, to the metaphysician, constitute the unexplainable mystery of living phenomena. There are still gaps and lacunæ in our knowledge of the relations of enzymes to life. During the past century, however, insurmountable obstacles in research have been passed and impregnable barriers removed. Mayhap those of the

younger generation will live to see the day when the remaining paths have been cleared away and shall then see what is now seen "through a glass dimly."

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INFERENCES ON ACHYLIA GASTRICA.

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THE object of this paper is to review the facts conducive to the belief that there is no pathognomonic curve in gastric chemism—that the height of an acid curve in ulcus ventriculi and its total absence in gastric carcinoma are interchangeable, and to emphasize the thought that although an abundance of study has been given to the secretory variations of the stomach, we must as yet look upon a gastric curve, whether high or low or conspicuous by its absence, as of remote importance unless it be one of a gastric syndrome.

One is reminded of a like train of thought when hearing indictments of a grave prognosis upon the occurrence of hematemesis—for the latter is neither pathognomonic nor cardinal, in as much as hemorrhage may occur from the gastric mucosa not only in cases of denuded mucous membrane, but also in severe anemia, in the purpuric group of blood diseases, chronic gastritis, rupture of the varicose esophageal veins, and gastric congestion, thus showing that a symptom so severe in its prognostic sense to the general practitioner may be due to some benign etiologic factor.

Likewise the presence of achylia when revealed in an analysis of the gastric chemism has led many a mind to label the case a potential or kinetic cancer, or at any rate, a digestive cripple—when in reality, after a good search and elimination, a diagnosis of achylia gastrica has often been rendered entirely consistent with good health. It is only after the compensatory digestive activity of the succus entericus is embarrassed by reason of an intestinal flora invaded by foreign irritative agents that the patient will have occasion for dyspeptic complaints.

Medical literature abounds in illustrative examples and my own experience at the Vanderbilt Clinic has brought me into personal contact with many more. One finds cases where achylia gastrica has been permanently present or persisted for years without baneful effects; others where the affection existed in persons too young for cancerous growths. In one man it lasted for twelve years with gain in weight and but few attacks of intestinal indigestion—a condition undoubtedly brought about by the action of the small intestine in vicariously assuming the function of the stomach.

Drs. Finney and Friedenwald[1] have cited a case of pylorospasm associated with a chronic gastritis simulating carcinoma in a man aged forty-eight years. The gastric secretion showed a true achylia and there was blood in the stools. The roentgen ray revealed a definite defect at the pylorus. In this case at least, the stomach chemistry was strongly supporting a diagnosis of malignancy. An exploratory operation, however, revealed a chronic gastritis together with a marked pylorospasm.

In a discussion on gastric disturbances Dr. Max Einhorn[2] alludes to the belief once current, that the absence of gastric secretion meant atrophy of the glands and consequent death. And when he found a man who had no gastric secretion he refused to accept the popular finding that the man had atrophy of the stomach and protested against such "promiscuous diagnosis."

Historically, the term achylia gastrica was first proposed by Dr. Einhorn in 1892 to designate a class of diseases in which no gastric juice is secreted. The affection is described as existing in the following forms: (a) Functional or nervous achylia, (b) Symptomatic, (c) Organic, (d) Idiopathic (Einhorn).

The term however does not imply the mere loss of free HCl, but also the existence of the following characteristic findings: (1) One hour after the Ewald test breakfast the aspirated contents are of the same appearance as when in the mouth before swallowing. I have found this to be quite characteristic. (2) The total acidity varies from 2-10 c.c. of $\frac{n}{10}$ NaOH. (3) The quantity of gastric contents one hour after the test breakfast is abnormally small—this also is quite characteristic except in the case of wet achylia. (4) The gastric contents slightly acidulated with diluted HCl cannot digest disks of egg albumen when placed in the thermostat; and milk similarly treated will remain uncoagulated—evidence that the secretion of enzymes is absent.

It might here be mentioned that the term achlorhydria, though often used interchangeably with achylia gastrica, implies only the absence of secretion of HCl. The use of "achylia gastrica" in that connection as meaning the total loss of HCl secretion independent of pepsin formation is, as Dr. Parker has pointed out, an unfortunate trend. That the amount of gastric secretion is not a determining factor in carcinous diagnosis becomes apparent on considering its wide variability. Forty per cent. of normal individuals have hypersecretion.

High strung patients who secrete HCl normally will often, under the influence of nervous excite-

ment and apprehension concomitant with the aspiration of a test meal, suffer the gastric secretion to be temporarily inhibited. In a recently published article Dr. J. L. Kantor[3] declares: "Experimentally it has been shown that in frightened animals the secretory as well as the motor functions are held in abeyance, so that one may meet with a case of retarded propulsion of the stomach contents as an instance of 'transient gastric retention'." Similarly, excitement and apprehension may bring about a 'transient inhibition' of HCl.

Hemmeter[4] calls attention to the rapidly varying states of secretion designated as heterochylia, occurring chiefly in cases of nervous dyspepsia, and cites instances of hyperacidity, hypoacidity, and anacidity observable in the same patient on the same day after identical test meals.

Dr. A. Goldman[5] laid stress on the possible finding of a Rheffus curve in gastric cancer as contrasted with a low or even very low titer in gastric ulcer. Thus while hyperchlorhydria is contributory evidence of gastric ulcer, it does not preclude the possibility of carcinoma; and achylia, though contributory in character as regards cancer, does not necessarily spell malignancy.

Dr. Rheffus[6] well classified the gastric secretory curves, placing at the head of his classification clean digestion, simple secretory variation. We thus may have clean subacidities, clean achylias which Rheffus justly assumes to imply a low or absent gastric curve, without any tangible evidence of mucosal irritation such as mucus, blood, pus, and so forth. Those curves are encountered in metabolic conditions such as gout, pellagra, and endocrine disturbances. In fact the inhibition of the gastric mucosa is thus established in almost any toxic state which inhibits the vagus or accelerates the sympathetic.

Moynihan[7] speaks of the stomach "as an organ full of sympathy for other sufferers"—metaphorically sympathetic ophthalmia. "Hardly any viscera connected with the intestine can be affected without the stomach playing its part in the disturbance also. This it does by pouring out an excess of secretion and by tumultuous and irregular activities. It so loudly speaks that its voice only is heard. The tears of sympathy are spoken of as hyperchlorhydria." Likewise, when a person is overcome by a strong emotional state, the stomach, responding to the shock transmitted, will suffer a corresponding cessation of its vital power. An interplay of vagatonia and sympathetic atonia is thus ever existent; and when for any reason the equilibrium is disturbed, the more dominant factor supervenes and holds unrestricted sway.

Further light on the limitations of achylia as a differential factor may be had from a consideration of non-cancer cases where the HCl is wanting.

In his publication on pernicious anemia Dr. Carr[8] presents the following summary: Gastric analyses were recorded in 57 cases, 53 of which showed no free HCl; 1 a free HCl of 2; 2 others of 7; the remaining case showed so much blood that acidity could not be tested for. In 93 per cent. of the cases examined the stomach contents showed no free HCl. Evidently achylia is an important clinical symptom of pernicious anemia.

Some authors call attention to the frequency of achylia in advanced cases of gall-bladder pathology, and its common association with syphilitic gastric ulcer. It is evident, therefore, that the absence of free HCl and its enzymes is a symptom common to many diseases and pathognomonic of no single one.

I wish here to make a plea for a more thorough search in the realm of chemistry for differentiating points. In this respect the test proposed by Wolff and Junghaus is very helpful though by many considered too elaborate, and unfortunately ignored. The test is that for dissolved albumin in the stomach contents as an indication of gastric cancer. Its underlying principle, as stated in Barker's monographic medicine,[9] is as follows: "When HCl and pepsin are absent from the stomach juice, one would expect no soluble albumin in the material aspirated one hour after a simple test breakfast. In simple achylia gastrica this expectation is realized; but in cancer of the stomach with absence of free HCl, there is often as much soluble albumin as in a normal stomach. This is accounted for by Wolff and Junghaus by (1) the action of ferments derived from the cancerous growth, (2) albumin secreted by the growth, and (3) diminished absorption due to secondary gastritis."

Smithies[10] has confirmed the value of this test, and among other conclusions states that "when carefully performed and interpreted, the Wolff-Junghaus test for demonstration of dissolved albumin in gastric extracts was positive or suspicious in 80 per cent. of our series of gastric cancer."

Friedenwald and Kieffer,[10] from a careful study of their cases conclude that the Wolff-Junghaus test "has its greatest significance in the diagnosis between simple and malignant achylias. Positive reactions are rarely observed in simple achylias, while they are frequent in cancer . . . . The test is positive in at least 83 per cent. of gastric cancer presenting an absence of free HCl, and in 72 per cent. of early cases."

The deduction therefore is warranted that the test is an immense aid in the diagnosis between grave and simple achylias and should be given the same weight as other tests.

From a number of cases treated at the Vanderbilt Clinic the following are selected as illustrating that age plays no great part as a causative factor in achylia gastrica.

A female patient twelve years of age was treated for universal psoriasis and presented symptoms which warranted a study to ascertain the status of her gastric chemistry, with resulting findings of a true achylia by repeated aspiration.

Male, fifty. Family history and previous personal history unimportant. Occupation, printer. Duration of symptoms, ten years. Chief complaints, epigastric distress, acid eructation, anorexia. Physical examination, sthenic, hyposensitive individual. Chest, negative. Abdomen of normal habitus, poor tone, no tenderness on superficial or deep palpation. Fasting contents revealed 4 c.c. of congo-negative fluid and no food remnants. *Ewald Test Breakfast:* Amount aspirated, 30 c.c., which separated into three layers—evidence of gases of fermentation. Free HCl = 0, combined HCl = 0, total acidity = 10. *Milk test* the following day uncoagulated. *Test for pepsin* (common method), negative.

While it is not within the scope of this paper to enter into a discussion of the medical treatment of achylia gastrica, the case mentioned pre-

sents such striking features from a dietetic viewpoint that it will be described more fully.

The patient was placed on a sparing and stimulating method of treatment with dilute HCl before, during and after meals. The symptoms complained of by him first abated in severity and finally disappeared, but recurred when he ceased taking the drops, upon his insistence on "getting well without the use of medicine." I put him on fresh pineapple juice, amounting to a pineapple a day, taken after meals in equal portions, with the result that the symptoms were again alleviated and the patient felt happy. Upon discontinuance of the pineapple treatment he suffered a full recurrence of symptoms. The alleviation of the symptoms brought about by the fresh pineapple juice is undoubtedly due to the proteolytic enzymes contained in the fresh pineapple.

Conclusions.—We have seen that the amount of gastric secretion is a factor of wide variability and that consequently an inference as to an individual's acidity based on a single examination of the stomach contents is unreliable. We have seen also that where true achylia is established it is often not incompatible with good health; and when accompanied by impairment of health the affection is not necessarily carcinoma. We are therefore inclined to believe with De Quervain, that achylia gastrica has no differential import.

It may not be unwise for the practitioner to attribute achylia gastrica to an advanced organic disease of the gastric glands—but only as a working hypothesis for further substantiation and not as a final pronouncement of a fatal prognosis.

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544 WEST 150TH STREET.

SECRETIN, A DEFENSIVE FACTOR AGAINST GASTROINTESTINAL CANCER.*

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As advances are made in the science and art of medicine the ravages caused by one disease or group of diseases after another have been much reduced or eliminated, leaving a correspondingly high mortality in the end to diseases that are not preventable or curable. With this average lengthening of life cancer has naturally increased in frequency, but it has increased more rapidly than can be accounted for by that fact. It has been estimated that cancer has increased in frequency about 25 per cent. in the last ten years.[1] Other countries than ours show an increase of from 4.2 to 43.6 per cent., the only ones having a decrease being Ceylon and Switzerland. This has made cancer of even greater importance than before, as the increase is still going on.

Most cases of cancer are diagnosed too late for complete extirpation or are in a location that cannot be removed. Even when operation is apparently successful, in many cases all of the tumor cells have not been removed, and a recurrence or another primary growth takes place. Surgery in such cases is the best we now have, but it has failed. A medical cure must be our goal.

A study of the incidence of cancer in the various organs is of interest. The following statistics[1] are those recorded in the U. S. Registration Area, 1901 to 1910:

	Males		Females	
	Number	%	Number	%
Stomach and Liver	50,157	50.5	50,388	32.6
Rectum, Intestines and Peritoneum	11,980	12.1	16,751	10.9
Buccal Cavity	7,304	7.3	1,529	1.0
Skin	6,252	6.3	3,303	2.1
Generative Organs	.....	....	35,587	23.1
Breast	.....	....	22,190	14.4
Other Organs	23,690	23.8	24,598	15.9
Total, 40 years and older	99,383		154,346	
Total, all ages	109,299		173,369	

Gastric cancer furnishes about 38 per cent. of all cancer deaths. On looking over the table given we note that when we except cancer of the breast and generative organs of women, the remaining figures are much like those for males. Men are more subject to cancer of the mouth and skin, while those for the stomach, intestines, liver, and peritoneum remain about the same.

I will now summarize a large mass of statistics collected from the literature and which cannot be given in detail. About 70 to 73 per cent. of all cancers occur in the digestive apparatus below the mouth. Approximately 9 per cent. are esophageal, 0.5 per cent. hepatic, and 1.7 per cent pancreatic. Of all cancers primary in the intestines, only 2.5 to 3 per cent. are in the small intestine. Those in the small intestine are mostly in the duodenum and ileum, with a few in the jejenum. Seventy per cent. of those in the duodenum involve the papilla duodenalis, and most of the remainder are below the papilla. Carcinoma primary in the ulcer-bearing area of the duodenum is very rare. Mayo states that most of the cancers in the ileum are near, but not at, the ileocecal valve.

We note especially from the above that cancer is very much more frequent in the stomach than it is in the whole of the small intestine, and also that it is relatively very common in the esophagus and whole large intestine. We should try to find out the reason for this, for if we can discover it, something of therapeutic value may be deduced.

An interesting point worth mentioning here is the relative frequency of gastric and duodenal ulcer. Surgeons state that duodenal ulcer is of much greater frequency than gastric ulcer, but for purposes of argument here we will assume that they are of equal frequency. Taken in connec-

*Read at the Seventh Annual Session of the Medical and Surgical Association of the Southwest, Phoenix, Ariz., December 1, 2, and 3, 1921.

tion with cancer statistics this would seem to suggest that either ulcer is not a predisposing cause of cancer, or that there is some substance in the duodenal epithelium that prevents malignant change there.

Along this line two interesting observations have been made. One is that occasionally a gastric carcinoma will invade the duodenum, but the ulceration there will be benign, and the other is that occasionally a duodenal ulcer near the pylorus will spread up into the stomach and become malignant there. This fits in very well with the above conclusion. Another interesting fact is that cancer of the stomach seems to grow more slowly after a gastroenterostomy than it otherwise would; probably due to the presence of some chemical substance in the bile, pancreatic juice, or duodenal secretion that is antagonistic to cancer. This substance may be secretin.

What common factor is there present or absent in the esophagus, stomach, and large intestine that has its counterpart in the small intestine? Certainly not stasis, acid reaction, hydrochloric acid, bacterial overgrowth, or catarrh. The most important factor I can discover is that no secretin is present in the mucous membrane of the esophagus, stomach, and large intestine, and that it is present in the small intestine. Of course, there are also present in the lumen of the small intestine bile, pancreatic juice, and the ferments secreted externally by the mucosa, but they are not a part of the epithelial cell of the small intestine, and cancer of the papilla duodenalis, which is bathed constantly in bile and pancreatic juice, is more frequent than that of the duodenum.

The liver is the largest and most active gland in the body and infection is common in it, but primary cancer is rare. Secretin goes directly to the liver in the portal blood, and in the most concentrated solution possible. Primary carcinoma of the pancreas is three times as common as that of the liver, yet the gland is smaller and infection is less frequent there. Secretin reaches it in less concentration by the general circulation.

It has been demonstrated by physiologists that secretin, the internal secretion of the mucosa of the small intestine, is present in the duodenum, jejunum, and ileum to within two feet of the cecum. It is most concentrated in the duodenum and diminishes in amount from there down. In experimental work it is given intravenously, but Downs and Eddy[2] have shown that it has the same effect when given hypodermically, except that it begins more slowly and lasts longer. The preparation loses its power in 6 to 8 days, but they state that when mixed with 2 per cent. glacial acetic acid and dried, it will remain active for 6 months. It is, of course, then neutralized before using.

I believe that the dried extract is active over a longer period than 8 days, and have seen stimulation of biliary flow in two cases after operation, when a tube had been left in the gall-bladder. This should prove of value to surgeons in treating such cases. Physiologists state that secretin is destroyed by the HCl of the stomach contents, but it was found on gastric analysis in both the above patients.

It may be that before the conversion of a predisposing pathological process in the digestive tract into cancer there is an alteration in the character of secretin in the mucosa, or a diminution or even absence of it, thus breaking down the natural defense. I have not been able to find any record of examination of the mucosa of the small intestine for secretin after death from cancer, pernicious anemia, and other conditions. Such an investigation would be interesting to carry out, and may yield valuable findings.

The therapeutic value of secretin against cancer can be easily tested out on implanted rats, and I hope that it will be done. The oral administration of the dried extract to patients with gastrointestinal cancer is worth trying. This should not interfere with operation when it is advisable.

Conclusions.—1. Ulcers of the stomach and duodenum are frequent, as is also cancer of the stomach, but cancer of the duodenum is rare.

2. There is some substance present in the duodenal epithelium that prevents the conversion of duodenal ulcer into cancer.

3. Secretin is present in the epithelium of the gastrointestinal tract where cancer is least frequent, and absent where it is most frequent.

4. Secretin has a directly antagonistic effect against gastrointestinal cancer.

5. A secretin preparation can be used therapeutically and should be given a trial.

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SPECIFIC GRAVITY AND ACIDITY OF URINE.

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AND
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In the laboratory of the Clinic, instead of determining whether a given specimen of urine is acid, neutral or alkaline by the use of litmus, a rough titration of the urine is made with N/10 NaOH, phenol-phthalein indicator, to determine the degree of acidity or the number of cubic centimeters of N/10 NaOH needed to neutralize 100 cubic centimeters of urine. The urine is titrated directly without first adding neutral potassium oxalate, which should be done in order to determine the true titratable acidity, owing to the presence of calcium and ammonium salts and monobasic phosphates. However, it is believed that the direct titration employed is sufficiently accurate for clinical purposes, if there is any real clinical value to be derived from a routine determination of the acidity of single samples of urine in the case of patients on their own choice of diet. In making the titrations it appeared that the degree of acidity was in large part dependent upon the height of the specific gravity figure. In order to determine the relation between specific gravity and acidity the figures for these were examined in 1,000 uranalyses, the results tabulated, and curves plotted. Only the analyses of

essentially normal urines, as indicated by lack of sugar, acetone bodies, albumin, and abnormal sediments, were examined. In addition to these, 50 analyses of urines containing acetone and diacetic acid, 13 of urines containing sugar, and 5 of urines showing marked nephritis were examined. Urines having an acidity of 10 or less, as determined by the above method, are neutral or faintly alkaline to litmus.

That the acidity of urine is, as a rule, a direct function of the specific gravity is shown in the chart. The numbers at the top are the average degree of acidity of the various urines whose specific gravities are represented by the numbers at the left. The curve made by uniting the dots by a solid line extends to right quite regularly with the specific gravity increase until at the extreme right

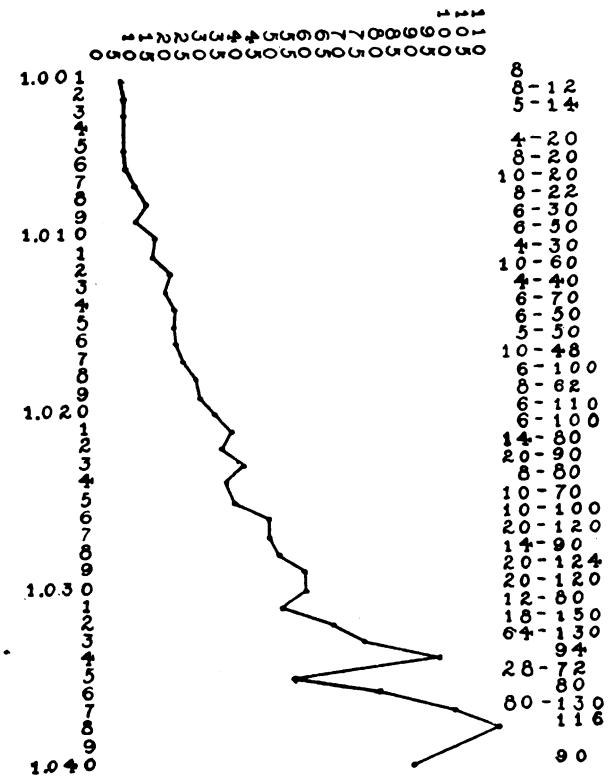

FIG. 1.—Curve showing the gradual rise in acidity of urines as the specific gravity increases. Numbers at the top are the average degrees of acidity observed for each degree of specific gravity as recorded by numbers at the left of the figure. Numbers at the right are the extremes of acidity as observed for each specific gravity as recorded at the bottom.

where it is irregular, owing no doubt to the small number of urines having a high specific gravity encountered among the 1,000 tabulated. The numbers at the right of the figure are the maximum and minimum degrees of acidity observed for each specific gravity indicated by the numbers at the left of the figure. These extremes are very great and there is a marked tendency for the minima to approximate a low figure, while the maxima become progressively larger as the specific gravity increases. The arithmetrical average acidity for the 1,000 specimens is 33.5. The arithmetrical average specific gravity is 1.0186. The ratio of acidity to the decimal fraction figures of the specific gravity is 1.8. The usual degree of acidity for any particular urine can be obtained approximately by multiplying the last two figures of the specific gravity reading by two. If the observed acidity is much above or below the theoretical figure, the urine is not necessarily pathological, but may be termed abnormal. Some are inclined to the view that high acidity of urine is something of an index of acidosis or an excess of acid salts in the urine. An examination of the chart shows that usually a high acidity merely indicates a highly concentrated urine. If the acidity in such a case is considered objectionable the simple administration of water will reduce it.

In order to determine whether there is a correlation between high acidity and acidosis fifty uranalyses in which acetone and diacetic acid were recorded in appreciable amounts were made. The acidity of each was divided by the last two figures of the specific gravity reading. The average of these ratios is 2.3 with extremes of 0.4 and 4.7. This shows that urines having acetone and diacetic acid possess an average acidity greater than normal. The test routinely employed for acetone is the well-known sodium nitroprusside-acetic acid mixture and ammonium hydroxide, that for diacetic acid the ferric chloride test. Acidity determinations, however, are of little value in diagnosing suspected acidosis as many urines containing acetone bodies possess low acidities and many urines with high acidities do not have them. The acetone and diacetic acid tests are simpler and more enlightening than acidity determinations. It is appreciated that acidosis may exist without acetone bodies being found in the urine. It is assumed that the fifty urines in which acetone and diacetic acid were found represented cases of acidosis. Most of them occurred in children, many of whom showed clinical signs of acidosis. It would be expected that urines whose high specific gravity is due to the presence of sugar would have acidities of relatively low degree. An examination of 13 uranalyses which recorded sugar in appreciable amounts and which did not contain acetone, indicated that this is probably true, although the figures are not striking. The acidity-specific gravity ratio in these thirteen cases is 1.3 with extremes of 0.4 and 2.6.

There are available only five uranalyses recording high albumin content and the presence of casts. The average specific gravity-acidity ratio in these is 2.1 with extremes of 1.0 and 3.1.

Conclusions.—An examination of 1,000 analyses of non-pathologic urines showed the usual specific gravity to be 1.020, the arithmetical average to be 1.0186.

The degree of acidity of urine increases directly with the specific gravity.

In normal urines the ratio of acidity to the last two figures of the specific gravity is 1.8, in urines from probable cases of acidosis, as shown by the presence of acetone and diacetic acid, the ratio is 2.3; in urines containing sugar the average ratio was found to be 1.3; in a small number of analyses in cases of marked nephritis the average ratio was found to be 2.1.

The determination of acidity in urines is of negligible value in detecting the presence of acidosis and of no value in excluding it; it has an important place in determining the results of alkali administration.

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MEDICAL RECORD.

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THE DIAGNOSIS OF ADENOIDS IN ADULTS.

As is known by their symptomatology, adenoids in adult subjects may be easily overlooked if one does not remember the possibility of their development. When a patient comes with symptoms of pharyngeal catarrh of long standing and obstinate to treatment, or if he complains of disturbances of hearing, an explanation of which cannot be derived from an examination of the ears, hypertrophy of the pharyngeal tonsil should be suspected. The only means by which a positive diagnosis can be made is by a posterior rhinoscopic examination and detection of the presence of adenoid growths. For that matter, examination of the rhinopharynx with the mirror should invariably be systematically made whenever anterior rhinoscopy, a laryngoscopy, or an examination of the ear is done. It is the necessary and indispensable complement. In children, adenoids make themselves manifest by such a group of subjective and objective symptoms that the diagnosis imposes itself, so to speak, without the necessity of resorting to posterior rhinoscopy, and a finger introduced in the pharynx will tell the tale if necessary. The same, however, cannot be said of adults, and if adenoids in them are not more frequently mentioned it is because posterior rhinoscopy is not practised often enough by the general practitioner. By this means a differential diagnosis will be readily made.

Reference to the palatine tonsils and their hypertrophy, which for a long time was thought to give rise to the accidents we now know are due to adenoids, need not be made. Difficulty in breathing due to obstacles in the nasal fossæ, such as polypi, synechiæ, deviations of the septum, chronic and hypertrophic catarrh, can be quickly diagnosed by the nasal speculum. It must be recalled that very frequently chronic nasal catarrh and hypertrophic rhinitis coexist with hyperplastic development of the pharyngeal tonsils, and, according to Raulin, the latter are paler than in true hypertrophic rhinitis. This is a point not to be disregarded in order to avoid unnecessary treatment of the nasal mucosa, which becomes progressively normal after the adenoids have been removed. When, by posterior rhinoscopy, the presence of a tumor is detected in the pharyngeal cavity, the questions of a fibrous polypus arises, and this is a somewhat delicate diagnostic point, of particular importance when the subject is from eighteen to twenty years of age. Of course, when the neoplasm is large and invades the adjacent cavities—the nose and orbit—the diagnosis is self-evident. On the other hand, if the growth is small, the diagnosis may be absolutely impossible, and the question can be settled only by a histological examination. During the early phase of development of fibrous polypi, an important differential sign is the frequent repetition of severe epistaxis, such as is never encountered in adenoids. From the viewpoint of direct examination, it is to be recalled that hypertrophy of the pharyngeal tonsil is seen as a more or less uneven mass, while nasopharyngeal polypi are smooth, more or less dark red in color, and rather large vessels are always seen on their surface. To the touch, adenoids are soft and irregular, and a bit of tissue can readily be removed with the nail. They have been aptly described as feeling like an earth-worm. A polypus is hard, cartilaginous, not very movable, with a polished surface. In elderly subjects an adenoid growth must not be mistaken for cancer. The latter has a rapid evolution, causes shooting pain, enlargement of the regional lymphnodes, and general cachexia. The growth is very anfractuous, ulcerated, and bleeds readily upon the slightest touch.

When removing adenoids in adults it is to be remembered that there is more bleeding at the time of the surgical act than in children, and that secondary postoperative hemorrhage coming on a few days later is more common than in young subjects. An operation should not be done during the menses or while coryza or an angina exist, no matter how trifling they may be. After their removal, the treatment should be directed to the cure of those complications that are prone to accompany the presence of hypertrophy of the pharyngeal tonsil.

NEOSALVARSAN IN MALIGNANT PUSTULE.

BOTH salvarsan and antianthrax serum have sufficed to cure some desperate cases of anthrax in the past few years, but the opinion is current that a bacteriemia due to the anthrax bacillus is beyond aid. Surgeons who advocate energetic local treatment claim that the serum alone is not sufficiently active to combat the full-fledged disease and that the outlook of the patient becomes very precarious. Both the old general mortality and the present-day mortality with surgery alone are in the vicinity of 40 per cent., while under modern conservative resources it is from 5 to 10 per cent. This low mortality is due largely to the possibility of early diagnosis and the resulting prompt treatment. Roux reports in the *Revue médicale de la Suisse romande* for February 1922, xlii, 2, the following case. The patient was a farmer and emergency butcher, who, called in to examine a beef which had just dropped dead, found the spleen of enormous

size. Anthrax was at once suspected and confirmed by the bacteriologist of the Canton. The butcher had carried the liver for some distance in his bare arms and a pimple appeared eight days later on the anterior surface of one forearm. He continued at his work of loading manure the rest of the day and by evening felt as if he was getting the grippe, a disease from which he had suffered in 1918. In the morning the arm was greatly swollen and the general condition poor, but having promised to kill a pig, he attended to the job and then collapsed. Taken to the hospital his condition was pronounced grave and a consultation was called. There were profuse diarrhea and vomiting with abundant cold sweats. The entire left arm was greatly swollen, with skin tensed to the limit. The malignant pustule on the forearm was the size of half a dollar. Blood tests showed the *Bacillus anthracis*, and inoculation tests on a guinea pig were positive. To ward off a possible tetanus complication an injection of antitetanus serum was given and five long incisions were made in the forearm. By the advice of Dr. Galli-Valerio both neosalvarsan and anti-anthrax serum were injected intravenously. These were repeated daily for several days and the patient received frequent injections of caffeine and camphor and drank nothing but champagne. From the first the patient reacted well and his mental state became favorable. He was without fever by the fifth day, left his bed on the fifteenth, and was out on the twenty-first. Recovery of his original strength was very slow. The arm was normal after fifteen days, but the left hand was somewhat crippled. It is thought that another two months or four months in all of convalescence will see a complete recovery. In accounting for the latent interval between handling the beef liver and the first outbreak of the carbuncle it will be necessary to suppose that the virus dried on the forearm and there remained until a chance scratch inoculated the patient eight days later. After the slight injury the development of the pustule was extremely rapid, a water blister being seen a few hours later. It seem incredible that the patient did not feel impelled to wash his forearms after handling the diseased liver, but this fatalism, or aversion to water, is rather characteristic of the peasant farmer.

THE INFECTIOUSNESS OF INFLUENZA.

A SPECIAL bulletin of the Division of Public Health Education of the New York State Department of Health cites new evidence of the extraordinary infectiousness of influenza at the beginning of an attack and of the importance of the common cold in relation to outbreaks of respiratory diseases. A local epidemic in a sparsely settled farming community on Long Island, at a time when connecting roads were nearly impassable and the people were largely cut off from nearby communities, made it possible to determine and study the source of the infection and the time and manner of its spread with almost the precision of a laboratory experiment. The following is the account of the origin of the epidemic as related in the Health Department's Bulletin:

On Friday evening, Feb. 10, the church people of this region held a "sociable" at one of the farm houses. There were fifty-one people present, and by Monday morning forty of them were sick with influenza of a fairly severe type. It was easy, afterward, to see what happened. The eleven year old son of the hostess had come home from school during the day and had gone to bed with a headache and fever. In the evening he could not resist the temptation to join the party, and he got out of bed, dressed and mingled freely with all the guests. Then he went back to bed, thoroughly ill with a typical attack of influenza. Undoubtedly he infected nearly every one in the social gathering. This was all the more possible because the party was held in two rooms of a house only thirty feet square, and there was great overcrowding. Influenza had occurred previous to the sociable in at least six families, with a dozen or more cases. From these the disease would perhaps have spread anyway, but the fact is indisputable that the actual spread was through the contacts of that unlucky Friday evening, and no one reported other cases than those directly traceable to this social gathering. All the cases in this outbreak were much alike. There was sudden onset, with headache and backache, fever and great weakness lasting seven or eight days. There were apparently no pneumonia cases, and all the patients recovered. In all the cases the "incubation period" was clearly fixed at from twenty-four to forty-eight hours after exposure.

The State Health Department sees in this outbreak striking confirmation of the following views: (1) Influenza at and just before its onset is extraordinarily infectious. (2) Every case of a common "cold," even if mild, should be isolated. (3) The public should realize the indefinite and possibly serious nature of a cold in the head. A "cold" may be almost any disease from a common and trivial cold to pneumonia; it may be caused by almost any germ from the as yet unknown virus of the common cold to some of the most virulent organisms known to medical science.

DIFFERENTIAL SURFACE TEMPERATURES.

THE phenomenon of difference of temperature of the two halves of the surface of the body is commonly mentioned only in hemiplegics, and the fact that such differences might exist in cases of visceral inflammation has attracted little if any attention. At least Pok, writing in the *Wiener klinische Wochenschrift* for February 9, 1922, xxxv, 6, makes no mention of any predecessor. His communication is apparently written to make good his claim to priority. As one of the staff of a gynecological clinic he deals only with conditions like unilateral annexitis, oophoritis, appendicitis, and tubal pregnancy. The patient should present evidences of a systemic inflammatory reaction, with localized pain or tenderness. One must not jump to the conclusion that any notable differences can be elicited by the thermome-

ter. The average excess on the affected side is slightly less than two-tenths of a degree for unilateral oophoritis. In uterine abortion there is no lateral difference of temperature and in differentiation between this affection and left tubal abortion, after the presence of a chill, etc., the excess of temperature of the left side over the right was in the latter case from one-tenth degree to more than one degree Centigrade. In the differentiation of appendicitis from acute left-sided abdominal conditions the higher temperature of the right side tends to exclude the latter. The author loses no time in the description of his technique of surface thermometry, but evidently takes several measurements during the day and is ruled by the average. His article hardly scratches the surface of such a potentially large subject, and he seems to have tested the method in but few cases before hastening into print.

Doctors and Wines.

THE showing of the recent questionnaire of the *Journal of the American Medical Association* that a number of physicians in the United States do not believe in the necessity of wine as medicine may be contrasted with some remarks on a similar subject by Dr. Cruchet, editor of the *Journal de médecine de Bordeaux* in the February 25, 1922, number (xciv, 4). A prominent champagne merchant in speaking of the endorsement by the profession of his product complained that while in private they gave him assurance of their support, they did not see the need of proclaiming it from the housetops. Others who lived in the champagne country, where all profited alike from the wine industry, thought their opinions would sound biased. Either of these excuses, according to Cruchet, is pitiful. One should be courageous enough to give his honest opinion and then stand by it. Mere local pride might influence a practitioner in the Gironde to recommend Bordeaux wine for all patients alike, and so on through each of the great wine-producing districts. A physician is believed to be an expert in these matters of wines, as he is or should be in mineral waters. His opinion should be given in good faith and without fear. He knows that in every one of the great French wine districts alcoholism is at a minimum; if he does not realize this he can easily convince himself. Drunkards are rare in Bordeaux, and when you find one he will be a brandy drinker. The doctor's motto, which would accord with the experience of the world, might be "fight alcoholism with wine."

Emboli and Embolic Gangrene of the Extremities.

EMBOLIC gangrene of the extremities from plugging of the main vascular trunks is extremely rare and it is very seldom indeed that cases are seen early enough to permit of the operation of embolectomy. The sources of these emboli are the aorta, heart, pulmonary and systemic veins, but in the latter case there must have been a patent foramen ovale. Embolism always predicates the antecedence of a thrombus in one of these localities. In order to obtain a better idea of the frequency and origin of emboli of the extremities P. Bull, the well known surgeon of Christiania, Norway, studied the autopsy records of the Rikshospital for the past 26 years, covering a material of 6,140 cases. (*Acta Chirurgica Scandinavica*, 1922, lxiv, 4.) The number of cases of embolism, discarding several doubtful ones, was but 15. The site was as follows: aorta, 2; common and external iliac, 6; external iliac and femoral, 1; hypogastric and femoral, 1; femoral, 3; popliteal, 1; subclavian and axillary, 1. Of the 15 patients 6 are known to have developed gangrene, 7 were exempt, and in 2 the result was uncertain. The next point to determine was the location of the original thrombus. In 13 of the 15 cases the thrombus formation was in the cardiac cavities and in the other 2 in all probability in the aorta. Of the thirteen intracardiac cases the left heart was the site in 11, while in the other two the right heart alone was the site. There is no mention of patent foramen ovale in these cases, but it must have existed. Thrombosis of the heart and aorta without consecutive embolism is not uncommon and there were 243 cases in the 6,140 autopsies. In all but 19 cases there was some lesion of the endo- or myocardium. The total number of cases of embolism, excluding those of the extremities, was 286 in the following order: lungs, 113; kidneys, 74; spleen, 60; brain, 32; intestines, 6; liver, 1.

News of the Week.

Smallpox in New York in 1921.—According to the February issue of the *Bulletin* of the New York State Department of Health, smallpox was reported from ninety-nine foci in the State during 1921 as against sixty-five for the preceding year. The total was 602 as compared with 281 for 1920. The disease was quite prevalent during the first half of the year, 86 per cent of the cases occurring during the first six months. The largest outbreak of the year occurred in Tonawanda and North Tonawanda, there being 37 cases in the former and 64 in the latter place. All of the outbreaks occurred in small cities, villages or rural towns, where vaccination is not practised unless it be as a result of a smallpox outbreak. In the nine first and second class cities of the State, where vaccination is a prerequisite to school attendance, no outbreaks occurred, and the disease rate for the year was only one-thirteenth of that elsewhere in the State, exclusive of New York City. Of the total 602 cases, 466, or 77.4 per cent., were never successfully vaccinated; 35, or 5.8 per cent., were vaccinated more than seven years previously; 21, or 3.5 per cent., were vaccinated within seven years, while in 13.3 per cent. no history was obtained.

National Research Council Announces Fellowship in Medicine.—Establishment of fellowships in medicine to increase the supply of qualified teachers in medicine in clinical and laboratory subjects and in curative and preventive aspects was announced March 23 by the National Research Council. The fellowships, supported by appropriations of the Rockefeller Foundation and the General Education Board, will be open to Americans or Canadians of either sex holding or qualified to hold degrees of Doctor of Medicine or Doctor of Philosophy from approved universities. The appro-

priations total $100,000 a year for five years. Successful candidates, to be known as Fellows in Medicine of the National Research Council, will be at liberty to choose the institutions or universities in which they will work. Correspondence concerning the fellowships should be addressed to the Division of Medical Sciences, National Research Council, Washington, D. C.

Drive for American Legion Camp Opens.—The American Legion, with headquarters in the Hotel Astor, New York, is conducting a campaign to raise a fund of $2,000,000 for a tuberculosis camp at Tupper Lake in the Adirondacks, which is being prepared to care for ex-soldiers. A site of 1200 acres has been acquired, with twenty buildings. It is expected that the camp will be prepared to care for 1700 men during the first year. Dr. Samuel Lloyd is treasurer of the campaign committee.

State Health Department Gives Health Talks By Wireless.—The New York State Health Department announces that Dr. Hermann M. Biggs, State Health Commissioner, will deliver health talks twice a week from the W.G.Y. station at the General Electric plant at Schenectady. The first of these lectures was delivered on March 24. The Health Department officials believe that the wireless will be a useful medium in disseminating the best possible medical advice on health subjects, especially to rural communities which have no physicians.

Free Clinics for Mental Diseases.—Forty free clinics for mental disorders are now conducted throughout New York State. During the past year nearly 5000 persons have attended these clinics, an increase of 34 per cent. over last year. Local newspaper publicity regarding the clinics is largely responsible for this increased attendance, the work of the clinics having thus been brought to the attention of those needing such service. More than 50 per cent. of these patients had never been under the care of the State hospitals.

War Strain Leaves Mark on Officers.—According to an informal report from the War Department, physical examination of regular army officers now in progress has disclosed clear cut evidence of physical deterioration due to the strain incident to the prosecution of the World War. An outstanding feature noted by attending surgeons in making the annual physical examination of all officers, including general officers, now required, was "the persistently large percentage of officers showing either excessively high or abnormally low blood pressure." Symptoms of physical deterioration noted by the staff of the attending surgeons included: Instability of the nervous system, characterized more particularly by affection of the vasomotor system; an unnatural tendency to worry, fatigability, low blood pressure and lowered resistance to all infectious diseases. The blood pressure of those officers who served in the A. E. F. who were over 45 years of age was materially raised, and in a majority of cases abnormally so, and in the case of younger officers, 25 to 30 years of age, was in the same degree decreased.

Public Health Officials Discuss Venereal Diseases.—A week's conference of physicians, public health officials and social workers was held in Chicago, beginning March 13, under the auspices of the United States Public Health Service. The conference divided its attention between consideration of the medical methods for curing the diseases and of social work to do away with conditions encouraging spread of them. During the week a number of clinics were given and visits made to dispensaries and hospitals.

Public Health Laboratory for Plattsburgh.—David Merkel of Plattsburgh has presented the city with $1,500 to be used for the establishment of a public health laboratory. The gift is to be a memorial to the donor's parents, Isaac and Jeannette Merkel. It will be situated at the Champlain Valley Hospital.

Hospital Notes.—Ground has been broken for a new $1,000,000 hospital, which the Sisters of St. Mary will erect on their site on Clayton Road and Belleview Avenue, St. Louis. The new building will be seven stories high and accommodate 200 patients.

The directors of St. Joseph's Hospital, Elmira, N. Y., announce that the construction of a new $150,000 hospital building will be commenced within the next two months.

The Newman Memorial County Hospital, Emporia, Kan., erected and equipped at a cost of about $300,000, was recently opened for the reception of patients.

A new $250,000 Biltmore Hospital at Asheville, N. C., will be started in the near future. The hospital will have 100 beds in addition to isolation wards, and will include in all eight buildings.

Work has been begun on additions to the Government Psychopathic Hospital at Lenwood, Ga. The cost of the additional buildings is estimated at $250,000.

Mrs. Frederick M. Thompson of New York has authorized the erection and equipment of a maternity annex to the Canandaigua Memorial Hospital, Canandaigua, N. Y. The contract has been awarded to the engineering firm of Elliot C. Brown & Co. of New York.

The Woodlawn Hospital, located at Fifty-fourth Street and Third Avenue, Birmingham, Ala., was formally opened on March 16. Dr. J. H. Stephens is the owner of the hospital, which is prepared to care for thirty patients.

A charter has been granted by the Secretary of State to the Sealy and Smith Foundation of the John Sealy Hospital, Galveston, Tex. The purpose of the newly incorporated foundation is the construction enlarging, remodeling, and equipping of the John Sealy Hospital and other hospital buildings in the city of Galveston connected with the John Sealy Hospital.

A new building at Sheboygan, Wis., has been completed and will be formally opened in the latter part of April for the housing of a group clinic. About thirty physicians, surgeons, specialists and nurses will constitute the staff of the new clinic.

The Board of the Virginia Baptist Hospital have awarded the contract for a hospital to be located at Lynchburg.

An addition to the Chambersburg (Pa.) Hospital has just been completed at a cost of $90,000.

A modern hospital for the treatment of cancer, to be known as "The Columbus Cancer Hospital," is to be erected at 340 East State Street, in that city.

This site has been leased by Dr. Charles F. Bowen for ninety-nine years.

The Board of Aldermen of New York City have authorized the Commissioner of Public Welfare to make improvements in the Sea View Hospital, Staten Island, necessary to accommodate tuberculous patients from the Fox Hills Hospital, recently abandoned by the Government. The United States Public Health Service has agreed to pay the city $3 a day for each such patient.

The city of Baltimore has acquired a site near Lake Montebello, upon which a hospital for contagious diseases will be erected at once.

The El Paso (Tex.) Masonic Hospital Association has received its certificate of incorporation. The association was formed for the purpose of purchasing the Rolston Hospital, the price being $130,000.

Dinner to Dr. Baker.—With the rounding out of twenty years of public service, the friends and admirers of Dr. S. Josephine Baker, Director of Child Hygiene, New York City Department of Health, are making plans for a testimonial dinner to be given in her honor at the Hotel Commodore on April 20. The committee, of which Dr. Henry Dwight Chapin is chairman, announces that many organizations have already signified their desire to cooperate and thus show their appreciation of the wonderful work that has been accomplished under Dr. Baker's guidance in the reduction of the death rate of mothers and babies and general work among the children of New York City.

Dr. Bertrand E. Roberts has been appointed epidemiologist of the State Department of Health, to succeed Dr. Edmund Boddy, resigned.

Dr. H. Earl Rogers has resigned his position as a member of the city health department of Dallas, Tex., and will enter the private practice of medicine in New York City.

Harvey Society Lecture.—Dr. Raymond Pearl, professor of biometry and vital statistics, Johns Hopkins School of Hygiene and Public Health, will deliver the ninth Harvey Society Lecture at the New York Academy of Medicine, Saturday evening, April 8, 1922. His subject will be "The Interrelations of the Biometric and Experimental Methods of Acquiring Knowledge; with Special Reference to the Problem of the Duration of Life."

The American Proctological Society will hold its twenty-third annual meeting at St. Louis, Mo., May 22 and 23, 1922, under the presidency of Dr. Granville S. Hanes of Louisville, Ky. The Society extends a cordial invitation to the profession to attend its public sessions.

Obituary Notes.—Dr. SAMUEL RAPP of New York died of heart disease at Atlantic City on March 19, at the age of sixty-seven years. He was graduated from Bellevue Hospital Medical College in 1879, and for more than forty years was attached to the Mount Sinai Hospital advisory staff. He was a member of the American Medical Association.

Dr. WILLIAM F. LEHMAN died at Chester, Pa., on March 3, at the age of sixty-three years. He was graduated from Jefferson Medical College in 1883.

Dr. CHARLES W. ARTHUR of Plattsburgh, N. Y., a graduate of the University of Vermont College of Medicine, Burlington, in 1865, died about March 5, at the age of seventy-eight years.

Dr. L. H. DAVIS, ship surgeon of the Munson Liner Pan-Americ, died of apoplexy aboard ship on March 12. Dr. Davis formerly resided in Millerton, N. Y., and served in the Medical Corps during the late war.

Dr. JAMES W. WARE, formerly of Bayonne, N. J., died at Cape May, N. J., on March 15 at the age of fifty-four years. He was graduated from Jefferson Medical College in 1895. He was at one time resident physician to the Shenandoah (Pa.) Hospital and a member of the staff of the Greenville (Pa.) Hospital.

Dr. R. B. HARRISON of Loudon, Tenn., a graduate of the Vanderbilt University School of Medicine, Nashville, in 1921, died of pneumonia on March 2, at the age of twenty-five years.

Dr. JOHN J. J. MAZZA of Bangor, Pa., a graduate of the Medico-Chirurgical College, Philadelphia, in 1910, died on March 12, at the age of thirty-three years.

Dr. CHARLES A. BEEBE, a retired physician of Fond du Lac, Wis., died at Chicago on March 6, at the age of fifty-nine years. He was a graduate of Western Reserve University School of Medicine, Cleveland, in 1882.

Dr. WILLIAM PALMER PATTERSON, a graduate of University and Bellevue Hospital Medical College in 1909, died of heart disease at his home in Newark, N. J., on March 21, at the age of forty-six years. He was a member of the American Medical Association, and attending physician at the Newark City Hospital.

Dr. THADDEUS MARSHALL BROOKS CROSS, a retired New York physician, died at the Peter Bent Brigham Hospital in Boston, on March 15, at the age of eighty-two years. He was graduated from Harvard College in 1863, received the degree of A.M. from that institution in 1866, and was graduated from Bellevue Hospital Medical College in 1868. He was formerly attached to the staff of Bellevue Hospital.

Dr. ANNA CRAIG died suddenly on March 21 at the State Hospital, Kings Park, L. I., at the age of sixty-two years. She was graduated from the medical department of the University of Michigan in 1893.

Dr. WILLIAM LAWRENCE CUTHBERT, retired, died at his home at Long Beach, Cal., on March 10, at the age of ninety-one years. He was a first assistant surgeon in the Civil War and first health officer of Long Beach in 1898.

Service Bureau.

Regular subscribers to the MEDICAL RECORD who desire information on any professional matter are invited to send their inquiries to the office of publication. Replies will be sent by mail as promptly as possible. Questions and answers of general interest may be published from time to time. When abstracts of articles from other journals are furnished the cost of typewriting will be charged.

Purchases will be made of articles of any description wanted by subscribers; a check sufficient to cover the cost should be sent with the order.

Subscribers visiting New York are welcome to use the office, 51 Fifth Avenue, as a temporary address for receiving and forwarding mail, telegrams, or small packages.

Correspondence.

AMERICAN MEDICAL CITIZENSHIP *VS.* THE AMERICAN MEDICAL ASSOCIATION.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—My county society, the Medical Society of the County of Kings (N. Y.) does *not* believe that membership in a County Medical Society robs a doctor of his *right* or absolves him of his *duty* to warn his brothers in the profession, directly, or by addressing any and all the county medical societies in the country, in warning of danger which threatens from the "wreckers from without" and the "borers from within" the medical profession; and to use any means, consistent with American citizenship, to strengthen the medical salient of the American line of defense against the forces of disorder which have been flooding the State and national legislatures with measures prepared, ostensibly, for the "brotherhood of man" and really designed for his political control, through his most precious possession, *health*.

Where does *your* county medical society stand? What do you, as an American citizen, think of the attitude of the board of trustees and judicial council of the A. M. A. (*Jour. A. M. A.*, lxxviii, 7, page 516) in challenging the right of the advisory committee, made up of American medical citizens, members of their county medical societies, and fighting *your* fight against vicious miscalled "welfare" legislation which would rob you of your self respect and economic independence, impair the dignity of your order, the health safety of your people, and the security of the State and nation we are bound to sustain, either as individuals or banded together, as such medical advisory committee, to criticise and demand (*a*) change in the leadership and policy of the American Medical Association; (*b*) elimination of the Scientific Section bloc of fifteen non-representative, administration-created, administration-hand-pickable, and administration-controllable delegates which has the capacity to neutralize and nullify the will of fifteen States having one vote each; or New York and Michigan; or Ohio and Pennsylvania; or Illinois, Michigan, and Wisconsin; or Massachusetts, Missouri, California, and Minnesota; or any other combination of States totaling fifteen voting delegates; and (*c*) the maintenance of the board of trustees at nine members and the reduction of the term to two years (instead of three) and the election of four trustees one year and five the next in order to frustrate an attempt, begun last June and coming up for determination this year, to reduce the trustees to seven (making a closer corporation) and extend the term to seven years (perpetuating an oligarchy)? What do you and your county medical society know of the "team work" of leadership and policy through which there was forged by the Reference Committee on Legislation and Public Relations, sharpened by the chairman of the judicial council, and passed by a house of delegates suffering from "super-delegatosis," a weapon of offense against our profession and the people we serve, which was so used at the National Capitol, to confound those of us who were (*where the A. M. A. should have been, but was not!*) before the (Winslow) House of Representatives' Committee on Interstate and Foreign Commerce at the hearing on the Sheppard-Towner Maternity (Birth Control?) bill, opposing its enactment.

Do you realize that a resolution, opposing State medicine and defining its limitations, which had been adopted by the New York State Medical Society and indorsed by Illinois, Michigan, Massachusetts, and New Hampshire, representing more than one-fifth of the population of the nation (nearly 24,000,000 people), was deliberately scrapped, as was also a similar resolution prepared by a subcommittee of the Reference Committee on Legislation and Public Relations, and acceptable to the audience at the hearing, and that there was submitted "as a substitute for all resolutions," by that same Committee on Legislation and Public Relations, a resolution which, when amended by a motion of the chairman of the Judicial Council, which cut off the tail and added a coccyx, read and was adopted thus:

Resolved, By the House of Delegates of the American Medical Association, that it approves and endorses all proper activities and policies of the State and Federal Government, directed to the prevention of disease and the preservation of the public health.

Do you realize that when Hon. Everett Sanders, of the Congressional Committee, said of that resolution: "That resolution is not a *condemnation* of any activity of the Federal Government, but is a *specific indorsement* of the activities and policies directed toward the preservation of public health, and this was in June, 1921," he realized (as you must) that the American Medical Association, through false leadership and policy and organized "team work" played right into the hands of the propagandists of the Sheppard-Towner Maternity Bill . . . "and now you know that they never can know and never can understand" the viewpoint of the rank and file (you) because they have acquired a contempt for the gullible, trusting, hero-worshipping medical-babes-in-the-woods, through whose admiration for their past performances in the field of scientific medicine these leaders have risen to positions of honor and acquired the power to subvert the function of the national medical organization to the purposes of the "wreckers from without," and that they are responsible to you and your county medical society, and to me and mine, for the natural consequences of their acts.

This was merely the culmination of a long series of incidents, covering several years, and yielding evidence of culpable disregard of the duty of guardianship on the part of individuals, acting as such and as "team-mates." Some definite shaping of the issues between the American medical citizen and the American Medical Association became imperative, and a medical advisory committee of American medical citizens was formed. Its personnel embraces men who have been active along the same lines as the present writer, whose work during the past several years in developing the power of organized medical citizenship, in the States of New York and New Jersey, by means of the professional guild idea and its capacity for making missionaries of hitherto docile medical practitioners and *sending them to their people with the facts*, was a material factor in changing the profession of medicine in New York State from a

"joke" (March 19, 1919) to an institution of civic force (April 7, 1920), because the legislators and their leaders and advisers "heard their master's voice" in November, 1919, when our enlightened and informed people spoke the language of *votes*.

This medical advisory committee asked the county medical societies of the country to adopt the resolution which follows and which was presented by me to my county society (the Medical Society of the County of Kings, N. Y.) in February, and made the special order of business of the March 21 meeting (and adopted):

Whereas, the public and profession are being sold out to: (1) Foundation control of "full time" medical education. (2) Lay board domination and the "closed shop" hospital. (3) Socialized state medicine, subsidized community health centers, and hospitals under political and university control. (4) Legislative dictation of therapy and fees. (5) Demoralization of medical standards by the expansion of cults. (6) Exploitation of the specialties by lay technicians.

Therefore, Be It Resodved, That all the delegates from the Medical Society of the County of Kings (N. Y.) to the Medical Society of the State of New York, and all such delegates who may be elected delegates to the A. M. A. meeting in St. Louis, Mo., May 22-26, 1922, are hereby instructed to vote for: (*a*) A change of policy and leadership in the A. M. A. pledged to the immediate abolition of the evils mentioned, and constructive protection of medical interests. (*b*) The repeal of multiple representation and plural voting privilege by the Section delegates. (*c*) The election of trustees for a period of two years; five trustees to be elected one year and for the next, to prevent the trustees from perpetuating oligarchical rule.

Be It Further Resolved, That copies of these resolutions be sent at once to the *New York State Journal of Medicine*, the *Journal of the A. M. A.* and the Medical Advisory Committee.

NOTE.—The secretary of the Medical Advisory Committee is F. H. McMechan, M.D., Lake Shore Road, Avon Lake, Ohio.

We are humble "Paul Reveres" trying to arouse you "Minute Men" to a realization of danger to you, your order, your people, and the State and nation. Just what is it that makes the medical salient the *locus minoris resistentiæ* of the American line of defense against the forces of disorder? Too much professionalism and too little citizenship. Too much reverence for past performances in scientific medicine and too little "checking" up of present conduct of medical affairs by those we have reased to leadership. The *Twelve* made the same mistake when they elected Judas Iscariot treasurer, because of his past performances in the field of finance.

JOHN J. A. O'REILLY, M.D.
405 UNION STREET, BROOKLYN, N. Y.

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, March 10, 1922.

Women Medical Students.—Several of the large teaching hospitals of London do not admit women as students, the excuse being generally that owing to the influx of those desiring to enter the profession of medicine since the war there has been no room. But these are by no means all the reasons, there are objections both on the part of teachers and men students to the admittance of members of the female sex. It is said that it causes embarrassment to the teacher to discuss before a mixed class certain medical subjects, such as venereal diseases for instance, and also embarrasses the men students. Discussion on the matter has been going on for some time, but has been brought recently to an acute stage by the decision of the authorities of the London Hospital, the largest in London, to admit women students no longer. The London Hospital was the only big medical school of the metropolis which allowed mixed classes. The ruling of the London Hospital has aroused quite a storm, which is fanned by the lay papers, and, of course, most diverse views are expressed. At a meeting of the governors on March 8 last of the Elizabeth Garrett Anderson Hospital for Women, Euston Road, London, opinions from the women's standpoint were freely ventilated. Mrs. Ogilvie Gordon, in alluding to the action of the London Hospital authorities, said it was a great misfortune that one of the finest and best metropolitan hospitals had decided to discontinue the admission of women students. The closed places in the Indian Empire would remain closed were it not for the medical women, and they would be needed presently too in the unhealthy places in the outposts of the empire to which boys were being sent and to which later the boys would have to go also. Mr. Gordon Pollock, chairman of the hospital, said he did not think they need take any notice of the action of the London Hospital. There must be something wrong with the institution if it could not get on with the women students. He had been told by a number of doctors that they found when there were women students in their classes the men put more zest into their work. They were a little afraid of the powers of work of the women students, who usually had a limited amount of money and had to get there by working all the time. When he first became interested in the Elizabeth Garrett Anderson Hospital there were only seven women on the medical register of England and Wales and now there were something like 2,000. That proved there must be some need for them. All of them appeared to be very busy and a number of them confessed to making quite pleasant little incomes. However, the point concerning which the controversy rages is not as to whether the female medical practitioner is needed; that point has been settled, she is needed, but as to the best means of educating her and the male student to the best advantage. Are exclusive or mixed schools most to be desired? The argument hinges on this point. It is stated in the *Lancet*, Oct. 23, 1920, in an annotation dealing with co-education in medicine that, according to the authorities of one of the mixed medical schools, if women are to become doctors and to work in conjunction with the present members of the profession on insurance and other committees, it is highly desirable that they should learn the same thing in the same place and not be segregated in schools of medicine for women only."

One feature of the situation seems to have been overlooked in the discussion, that all the largest and best medical schools are reserved for men students and that consequently women students are at a disadvantage in this respect. The only exclusive medical school for women in London is

that attached to the Royal Free Hospital, which is neither large nor prosperous. Now that the London Hospital has shut its doors to female students, practically all the large, well equipped London hospitals, with their wealth of clinical material and first-class teachers, are not available for women. As all questions of moment, this question has two sides, and it is difficult to pass a decided opinion on the matter. Time alone will show whether the results of the exclusive schools and the mixed schools, respectively, justify the policy of the former, although as has just been pointed out, the exclusive women's medical schools are in many ways considerably handicapped.

What Is the Influenza Problem?—The influenza problem is one which concerns the whole world, and, to speak frankly, seems as far from its solution as ever. Of course, the general public of all countries are exasperated at the comparative futility of the medical profession to deal successfully with epidemics of the disease, either from the preventive or curative standpoint, and especially from the preventive point of view. But, as said before, the disease is world-wide, and it may be added that the inability to control it is likewise world-wide. In *Health* for March 22 the following apt remarks are made with regard to this infection. It is not many years ago that we failed to control smallpox or plague, for example. Not long since we did not even know that bacteria existed. Knowledge must come gradually. Meanwhile, do not pour forth futile criticism; help the research which is daily striving for human good. It may be well to point out one or two essentials of this so-called problem. Actually there are many more than one. It is not known why influenza takes on a world-wide march at irregular intervals. The infection may periodically change its virulence, pass through a cycle of infectivity, but why? Attempts to associate it with meteorological conditions have so far failed, whatever the papers may say. We are not even certain that Pfeiffer's bacillus is the cause or even a cause. Bacteriologists have isolated it from many cases, but they have failed in the crucial test of inoculation in animals to reproduce influenza. Further, there is no characteristic symptom of influenza. It assumes many types. Have we any right to say these types all represent the same disease? Even upon the simple point of immunity conferred by a previous attack, evidence is absolutely discrepant. Why is one outbreak particularly fatal to one age period while the next deals death to a totally different section? Apart from all this, how are respiratory infections in general to be prevented under existing conditions of life? Truly, we do not know. Such a review is necessarily depressing, but it should be realized that influenza stands for an unconquered region of medicine so vast that the laying of blame to any professional organization and the dogmatic statements prevalent in certain quarters comes perilously near the ridiculous.

Presentation to Lord Knutsford, Chairman of the London Hospital.—An address was presented, on March 6 last, by the President, Vice-Presidents, House Committee and medical and surgical staff to Lord Knutsford to mark the completion of the twenty-fifth year of his chairmanship of the London Hospital and appreciation of the services he has rendered to that institution. Among those present and who gave testimony to his great services to the hospital was Lord Dawson, the well-known physician, who, speaking on behalf of the medical and surgical staff, said that between the years 1896 and 1903 the hospital buildings were modernized and recast, operating theaters and equipment representing all that modern knowledge could devise were created and thus rendered possible the high surgical skill for which the hospital was renowned. All these additions exemplified the alertness of the hospital under the chairman's inspiring leadership. This leadership found expression not alone in bricks and mortar, but in an infectious enthusiasm for medical progress and in determination that the London Hospital should be in the van of that progress. They rejoiced to think of that occasion, not as a farewell but a landmark of a great career. His enthusiasm, his vitality, his fun and his sense of humor had played no small part in its success. Lord Knutsford had differed on varying occasions from most of them, but never once had he failed in generosity and consideration. And who among them had not felt his kindness and sympathy on occasions innumerable? His understanding and help had encouraged many a junior in his early struggles. A Prince of Beggars, he had the instincts of the sportsman and the genius of the friend. He loved kindness, and, still more so, the doing of it. To him helpfulness was a privilege and the need his inspiration, and no small part of his service to the hospital had been his example of high and warm-hearted endeavor.

It may be added that Lord Knutsford is an example of what one man can do for an institution. The London Hospital is the largest in Great Britain and has one of quite the largest out-patient departments of the world. It is also one of the poorest. Its endowment is trivial and it is practically dependent on voluntary contributions. When Lord Knutsford, then Mr. Sydney Holland, took the reins of management twenty-five years ago the hospital was in a parlous condition. Almost wholly through his untiring energy and gift for organization he not only succeeded in obtaining sufficient money to conduct the hospital in a proper manner, but raised the money for the rebuilding scheme which cost nearly £1,000,000. In fact, at the present time the hospital is completely equipped and up to date in every department. Lord Knutsford, during the past few years, has struggled hard to maintain the services of the hospital, but the task has been too great. When it is considered that hospitals with large endowments are in difficulties, it is not a matter for wonder that the London Hospital, situated in the midst of the poorest district of London and with scarcely any income should be in a similar predicament. Lord Knutsford has thoroughly well deserved the tribute just paid him.

Women Doctors in Asylums.—At the recent conference on Lunacy Reform, convened by the Chairman of the Board of Control, the position of women doctors in asylums was made the subject of a somewhat stormy discussion. The opinion

of one of the medical superintendents is worth quoting. He said in part, that he had invariably found that the woman doctor was capable, well-informed, painstaking, energetic, and keen. On the other hand, he was compelled to admit that she had her disabilities, her limitations. Associating with her as he had done for so many years, he was afraid that her judgment was apt to be hasty and based on insufficient evidence; that she was often lacking in a sense of proportion, and, on reading her case book notes he had frequently observed that she gave undue prominence to comparatively unimportant details, while neglecting or failing to grasp essentials. It was extraordinary, but his experience had been that the patients and staff had not that confidence in her that they had in her male colleagues, and in cases of serious illness they preferred to be treated by the medical man. He would qualify this statement, however, for in one or two instances there had been brilliant exceptions to the general rule. This view was not entirely in unison with that of other speakers. One of these declared that women were rather apt to worry over things, and to be over-anxious, but that was not a bad quality. Another speaker held the opinion that women should certainly take their share in this work, and went so far as to say, that he saw no reason why they should not become medical superintendents. Mrs. Martyn, one of the speakers, said that women were demanding that in every mental hospital where there were women patients there should be one woman medical officer. She added, "Some people tell us that if men behave very well in this world, in the next incarnation they will be women."

Ophthalmological Congress.—This Congress will assemble at Keble College, Oxford, on the evening of July 5 and the meeting will be held on July 6 and 7. On July 6 a discussion on the "Significance of Retinal Hemorrhages" will take place, to be opened by Dr. C. O. Hawthorne and Mr. P. H. Adams. The Doyne Memorial Lecture will be delivered on the morning of July 7 by Mr. J. Burdon-Cooper, the subject being the "Etiology of Cataract."

Progress of Medical Science.

Boston Medical and Surgical Journal.

March 16, 1922, clxxxv, 11.

1. Acute Pancreatitis. Daniel Fiske Jones.
2. The Indications for Operation in the Treatment of Injuries Involving the Brain. Donald Munro.
3. Concerning the Type of Injury to Renal Epithelial Cells Which Increases the Susceptibility of the Cells to the Action of General Anesthetics. William deB. MacNider.
4. Acute Puerperal Inversion, with Report of a Case. Joseph P. Cohen.

1. Acute Pancreatitis.—Daniel Fiske Jones cites experimental and clinical evidence which leads him to the belief that there are probably two types of acute pancreatitis, with quite different etiology—namely (a) interstitial pancreatitis due to infection of the interstitial tissue, the infection coming frequently from the biliary system, and (b) pancreatic necrosis, a necrosis of the parenchymal cells, due to retrojection of bile into the duct of Wirsung or duodenal contents into the duct of Santorini. The treatment of the interstitial type, due to an infection from a cholecystitis, is cholecystectomy. The treatment of pancreatic necrosis is drainage of the fatty capsule of the pancreas and the pancreas itself. In addition, if the condition of the patient will permit, either the sphincter of Oddi may be cut, a choledocostomy or a cholecystostomy done, depending upon the condition of the patient and the condition of the gall bladder and ducts found at operation.

2. The Indications for Operation in the Treatment of Injuries Involving the Brain.—Donald Munro states that the indications for operation in injuries involving the brain are three: Compound fracture of the skull, depressed fracture of the skull, and a rise in the intracranial cerebrospinal fluid pressure. Patients who have received an injury to the brain do not develop symptoms and do not die from the fracture which may or may not be present in the bones of the head. They do develop symptoms and they do die as a result of the increase in intracranial pressure which accompanies the fracture, or which not infrequently is present in the absence of any fracture. The intracranial cerebrospinal fluid pressure depends on the relation between the secretory powers of the choroid plexus and the absorptive powers of the cerebral venous circulation. All cases that have received or are suspected of having received an injury to the brain, no matter how slight, should, as soon as they have recovered from their surgical shock, have the pressure of their cerebrospinal fluid measured, and the treatment should be based primarily upon this finding alone. If the intracranial pressure is measured, the symptoms and signs, such as pulse, blood pressure, respiratory rate, and mental state, commonly used as indications governing diagnosis, treatment, and prognosis, need not and should not be regarded in any other light than as confirmatory evidence.

3. Concerning the Type of Injury to Renal Epithelial Cells Which Increases the Susceptibility of the Cells to the Action of General Anesthetics.—William deB. MacNider has made observations on dogs which indicate that primary injury to the kidney develops in the glomeruli. The earliest evidence of secondary injury to the renal epithelium consists in a marked accumulation of stainable lipoid material in these cells and, especially, the secretory cells of the convoluted tubules. When naturally nephropathic animals are anesthetized by chloroform or ether, and the effect of these anesthetics on the kidney is contrasted with the effect of the same anesthetics on the kidneys of normal control animals, a parallel is found between the toxic action of the anesthetics for the two groups of animals and the amount of stainable lipoid that can be demonstrated in the stainable epithelium. In the kidneys of the naturally nephropathic animals, in which the amount of stainable lipoid has greatly increased in the renal epithelium secondary to the glomerular injury, the anesthetics induce an early degeneration and death of these cells and urine formation is arrested. In the normal control animals, in which only a small amount of stainable lipoid can be demonstrated in the loops of Henle, such degenerative changes do not occur, and these animals form urine during the period of anesthesia. The Meyer-Overton law would appear to apply to cells in this location as well as to the central nervous system.

New York Medical Journal.

March 15, 1922, cxv, 6.

1. Effects of Faulty Foods on Endocrine Glands. Robert McCarrison.
2. The Effect of Endocrine Derangement on the Dental Tissues. F. W. Broderick.
3. Endocrine Interactions. David M. Kaplan.
4. Endemic Goiter in British Columbia. H. Ewan Waller.
5. The Early Diagnosis and Treatment of Hyperthyroidism. Emil Goetsch.
6. Pathogenesis, Symptomatology, and Treatment of Hyperthyroidism. Israel Bram.
7. The Interrelation of the Endocrines and the Vegetative Nervous System. William V. P. Garretson.
8. The Suprarenals in Asthma. Arthur F. Hurst.
9. Anaphylaxis and the Endocrines. Henry R. Harrower.
10. The Incidence of Syphilis in Hypothyroidism and Myxedema in Children Murray B. Gordon.
11. A Case of Hypothyrosis in an Infant. Alvin E. Siegal.

1. Effects of Faulty Foods on Endocrine Glands.—Robert McCarrison, in the course of feeding experiments in animals, has observed that malnutrition, whether rising from complete starvation, from the incomplete starvation due to avitaminosis, or from star-

vation resulting from deficiency of proteins and calories, gives rise to enlargement of the adrenal glands and sometimes of the pituitary body with an atrophy of all other endocrine structures. The functional perfection of the adrenal glands is dependent upon the balance of the food and the quantity and quality of its vitamines. It was noted that in pigeons fed on mixed grain and butter, but without onions, tnat the incidence of goiter was 65 per cent. Free, unsaturated, fatty acid—oleic acid—is in certain cases peculiarly potent in respect to goiter production, while cod-liver oil containing 0.002 per cent. of iodine is peculiarly beneficial in respect to goiter prevention; both point to iodine as a common factor concerned in the result. So far as butter and oleic acid are concerned, an intake of iodine approximately proportionate to the intake of these fats in the food is requisite for the maintenance of normal metabolism, and for the normal functional perfection of the thyroid gland. A relative deficiency of iodine may be brought about by an excess of edible fat or of free oleic acid in the digestive tract. Faulty food permits the entrance into the blood of a stream of intestinal bacteria, which, acting on the thyroid, may cause congestion of the organ, desquammation of its acinar cells, and distortion of its normal acinar structure. Indeed, it is possible by the examination of the thyroid alone, with but a small percentage of error, to distinguish between those deficiently fed animals that have suffered from septicemic states in consequence of food faults and those which have not.

2. The Effect of Endocrine Derangement on the Dental Tissues.—F. W. Broderick points out that if the endocrine apparatus is thrown out of balance in the direction of calcium starvation, the reserve store of calcium is diminished, and fixation of lime salts in the teeth is interfered with. An upset in endocrine balance in childhood, youth, and pregnancy will be in the direction of calcium starvation. Calcium starvation will lead to a diminished calcium index in the saliva, with a lessened alkalinity of that secretion, thus directly leading to caries. Endocrine derangement, leading to a loss in balance toward calcium starvation, will tend to cause a condition of acidosis by lessening the alkali reserve of the body; in the compensation of this condition the calcium salts, together with other alkaline salts, will be used for acid neutralization, and therefore not available for hypercalcifying teeth. If the acidosis be more severe, built up and fixed inorganic lime will be torn away from bones and teeth to help build up this alkali reserve, and thus preserve life, lowering the resistance of the teeth to caries. Without this susceptibility to caries, exciting causes, i. e. food fermentation matter not at all, but if immunity be removed hardly will any reasonable care and attention preserve them entire. Endocrine derangement will account for all the conditions leading to dental caries, whether they may be diet, lack of vitamines, altered salivary secretion, or what not.

9. Anaphylaxis and the Endocrines.—Henry R. Harrower concludes that anaphylaxis, or protein sensitization, may involve the endocrine glands, and a part of the reaction connected with these idiosyncrasies may involve the ductless glands. Hypoadrenia of anaphylactic origin needs to be treated like adrenal insufficiency of any other toxic origin. Occasionally protein sensitization may be overcome by the establishment of an immunity, as is routinely done in the treatment of hydrophobia or the administration of bacterial vaccines. In vomiting of pregnancy, placental substance administered over a period seems to favor an immunity to placental proteins and a control of toxic irritability. Occasionally prophylactic measures bring about an anaphylactic reaction, particularly in patients already sensitive to other food proteins. Whenever a clinical hint attracts attention to protein sensitization, the endocrines should be studied and brought into the matter both from the viewpoint of diagnosis as well as treatment.

10. The Incidence of Syphilis in Hypothyroidism and Myxedema in Children.—Murray B. Gordon calls attention to several instances in the literature in which a hypothyroidism was probably produced a syphilitic infection as both conditions were coexisting and disappeared simultaneously under thyroid and antisyphilitic treatment. He finds that syphilis is not of great etiological significance in the majority of instances of myxedema and hypothyroidism in children. However, it is possible for syphilis to attack the thyroid gland with the production of these conditions. In a series of forty-two cases of hypothyroidism and myxedema in children both the luetin and Wassermann tests were performed with the result that 12 per cent. were found to be positive, an incidence of syphilis considerably higher than that placed by Jeans for the general infant population, which showed five to six per cent. of infants affected with syphilis and a higher percentage in older children.

Journal of the American Medical Association.

March 18, 1922, lxxviii, 11.

1. The Specialist and General Practitioner in Relation to Team-Work in Medical Practice. Lewellys F. Barker.
2. Carcinoma of the Breast, with a Consideration of Precancerous Conditions. Byron B. Davis.
3. Local Spasm of the Esophagus and Impairment of Deglutition Following Local Injury of the Pharyngeal and Esophageal Mucosa. A. J. Carlson.
4. Palliative Control of the Gastric Crises of Tabetic Neurosyphilis by the Rectal Administration of Chloral Hydrate and Sodium Bromide. Albert R. MacFarland.
5. Desensitization of Hay Fever Patients by Specific Local Applications. George M. Mackenzie.
6. Mechanics and Treatment of Fractures of the Forearm. Paul B. Magnuson.
7. Anatomic Study of Injection of Second and Third Divisions of Trigeminal Nerve. Francis G. Grant.
8. Carcinoma in Lateral Aberrant Thyroid Gland: Report of a Case. Louis Greensfelder and Ralph Boerne Bettman.
9. Blood Pressure Findings in Circulatory Disorders of the Extremities. Bertram M. Bernheim.

4. Palliative Control of Gastric Crises of Tabetic Neurosyphilis by the Rectal Administration of Chloral Hydrate and Sodium Bromide.—Albert R. MacFarland reports that since he has used large enough doses of these drugs, and learned the safe interval of administration of this combination, he has achieved results at least as good as those with morphine in the majority of cases, and the grave risk of developing morphine addiction has been avoided. An aqueous solution of chloral hydrate and sodium bromide is prepared so that one-half ounce (15 c.c.) of the fluid contains 40 grains (2.6 gm.) of each drug. For persons weighing more than 150 pounds as much as 60 grains of each drug at one dose may be administered. The injection is introduced six inches into the rectum by gravity pressure, through a catheter. The administration of the chloral and bromide gives relief from both pain and vomiting for from two to five hours. In no instance has the development of an appreciable immunity to these drugs been noted. Gastric lavage seems to be a valuable adjunct to the treatment.

5. Desensitization of Hay-Fever Patients by Specific Local Applications.—George M. Mackenzie describes a method of preparing pollen extracts which contain from 75 to 150 mg. of nitrogen per 100 c.c. The extracts are standardized by content in nitrogen, a method first suggested by Cooke and Vander Veer. For routine use four strengths were used, containing respectively 0.01, 0.1, 1.0, and 10.0 mg. of nitrogen per 100 c.c. A group of 38 patients, 35 with late hay-fever, treated with ragweed extract, and three with early hay-fever, treated with timothy extract, were divided into three groups. Eight were treated by subcutaneous injections alone; 10 were treated by local applications alone, and 20 were treated by both subcutaneous injections and local applications. The routine method was to give the injections twice a week, beginning with the weakest of the four stock solutions, gradually increasing the amount and then the strength of the solution until several injections of 0.5 to 0.7 c.c. of the solution containing 10 mg. of nitrogen per 100 c.c. had been given. For the local applications the patient was given an ordinary atomizer and instructed to spray the nasal passages night and morning, beginning with the weakest solution. It soon became clear that the reactivity of the nasal mucosa could be greatly diminished by the spray alone. In several instances patients were eventually able, after eight to ten weeks of spraying, to use freely a solution 1,000 times stronger than the one which at the onset has caused symptoms when used in small amounts. In the series of patients given specific prophylactic treatment by this method, the results compared favorably with those in the series of patients treated by specific subcuta-

neous injections, but were less satisfactory than when a combination of the two methods were employed.

9. Blood Pressure Findings in Circulatory Disorders of the Extremities.—Bertram M. Bernheim states that in the last analysis the various groups of circulatory disturbances of the extremities—Raynaud's disease, arteriosclerosis, diabetes (with sclerosis), senility, thrombo-angiitis, etc.—exhibit many features in common, the treatment is unsatisfactory, and the end result the same. Blood pressure readings taken on patients suffering from a variety of circulatory disorders of the extremities indicate that, far from exhibiting a rise, many of them reveal a low pressure, extraordinarily low in certain instances, while most of them present a normal pressure. Once in a while a slight elevation is encountered. Almost never does one see a real hypertension. This is just the opposite of what one might have expected, in view of the fact that a compensatory elevation of blood pressure is frequently seen in generalized arteriosclerosis and in certain forms of heart and kidney disease. The relation of these findings to ischemic conditions of the legs may be interpreted in two entirely distinct ways. It may be argued, on the one side, that in circulatory derangements exhibiting obstruction to the blood flowing toward the lower leg and foot the blood pressure does not rise, the vis a tergo fails to increase, and so no opposition is offered to the further encroachment of the disease process. The result, unless successful treatment is given, is gangrene. On the other hand, it is just as logical to suppose that in the vast majority of disease processes affecting the blood vessels of the extremities there does occur a compensatory rise in the blood pressure, and that, as a consequence, the threatened and real gangrenes do not come to pass. Only where this rise fails to materialize do we see the gangrenes. The latter theory might well account for the failure to find these disasters among the many hypertension victims. It may be that in the blood pressure we may have the explanation of certain obscure features connected with the production of the threatened and real gangrenes. The blood pressure element in all cases of threatened and real gangrene is apparently of more importance than has heretofore been recognized. It may be that present methods of treatment, such as they are, will have to be revised, and a more rational therapy, one that conforms to the actual state of affairs existing, instituted.

The Lancet.

February 25, 1922, ccii, 5139.

1. The Arris and Gale Lecture on New Researches in Color Vision. F. W. Eldridge-Green.
2. Some Points on Spasm in the Alimentary Canal. G. de Bec Turtle.
3. Gamma Rays and Malignant Disease. Reginald Morton.
4. Deep X-Ray Treatment of Cancer: A Personal Impression of the Erlangen Frauenklinik. H. Kingsley Ward.
5. A Case of Sclerema Neonatorum. Eleanor Bourne.
6. The Application of the Methods of Correlation to the Study of the Urine. Charles Powell White.
7. Medical Life in a French Colony. Alfred S. Gubb.
8. Cause, Condition, and Constellation in Medicine. H. A. Bosma.

3. Gamma Rays and Malignant Disease.—Reginald Morton has treated more than 300 cases by the Erlanger method during the past year and feels justified in making the statement that this is not only the best system of *x*-ray therapeutics yet devised, but is probably the most important recent contribution to the solution of the problem of malignant disease. He points out, however, that the system has its limitations; it is of little use where the general health is seriously impaired; no important success, for instance, has attended efforts to deal with carcinoma of the stomach. It is also of no help where the disease is extensive or after dissemination has begun. The conditions favorable to success are as follows: (1) The general health of the patient; (2) the lesion must be localized to a reasonably small area and treated before it has begun to invade widely the adjacent tissues. and before there is any distant dissemination; (3) the technique must be carried out accurately and completely at one sitting, so that every part of the lesion receives the requisite dose; (4) the health and well-being of the patient must be carefully controlled subsequent to irridiation. If all these conditions are present, it may be laid down, almost as an axiom, that the malignant growth will disappear, and with but a trifling disturbance of the patient's ordinary life. As to the relative advantages of surgery and radiology for the relief of victims of malignant disease, Morton believes that there are grounds for thinking that before many years surgery may become auxiliary to radiology. Speaking broadly, even now it is possible that radiology can do more than surgery under equally favorable conditions; it is at least significant that in the Erlangen Frauenklinik, where surgical methods have been definitely abandoned for cases of malignant disease of the female pelvis in favor of *x*-ray treatment, greatly improved results have been obtained. Evidence is overwhelming that radiology can be of the greatest assistance in dealing with malignant disease, and recognition of this fact should lead surgeons and gynecologists to seek the radiologist's cooperation immediately the nature of the case is determined and before any treatment has been applied.

5. A Case of Sclerema Neonatorum.—Eleanor Bourne reports this case which occurred in a new-born child. The clinical picture given by most writers is that the skin progressively becomes waxy, leathery, rigid, and adherent to the underlying tissues, the temperature fails, pulse becomes poor, food is not taken because the child cannot suck, all functions are impaired, the fontanelle becomes depressed, and the child dies in from two to ten days. In this case the typical symptoms were present. The treatment was based on the lines of overheating the child's bed to combat directly the subnormal temperature. Thyroid was given on the assumption that the symptoms were primarily due to acute functional failure (possibly transitory) of the thyroid. Rectal irrigations with sodium bicarbonate were given, partly to counteract acidity, and partly to remove toxins from the intestinal tract, the existence of intestinal stasis being shown by the passage of pure meconium as late as the fifth day. The relationship between intestinal stasis and thyroid insufficiency is shown by the common symptoms—complex of chilliness, inertia, headache and constipation, and pseudo-asthma. The relationship may constitute a vicious circle. Under this treatment the child was greatly improved when 6½ weeks old; at six months he was normal, except for weight, while at nine months he had reached the normal weight for his age.

6. The Application of the Methods of Correlation to the Study of the Urine.—Charles Powell White, believing that some light might be thrown on the composition of the urine and the process of excretion by the kidney by the application of methods of correlation, has computed coefficients of variation of different substances in fifty-two urines from twenty-two patients. The chief points suggested by this investigation are as follows: (1) The results obtained appear to favor most strongly the view that certain substances (sodium, potassium, chloride) are excreted in association with the water and hence through the glomeruli. Other substances (urea, uric acid, and sulphurous acid) are excreted independently of the water and therefore presumably through the tubules. Others again (phosphates, magnesium and calcium) appear to hold an intermediate position, possibly being excreted by both channels. This investigation thus supports the secretion theory rather than the filtration theory. (2) The association of urea with sulphuric acid and phosphoric acids is an interesting point which demands further investigation. (3) There is no indication of the excretion of uric acid as sodium urate, but there are indications of calcium and potassium urates. (4) Potassium appears to be excreted almost entirely as chloride, but some urate may be present. (5) Sodium is excreted as chloride, phosphate, and sulphate. (6) Calcium and magnesium are excreted as chlorides, phosphates and sulphates, and possibly also as urates. The chlorine was persistently above the mean. This suggests that the magnesium was absorbed and excreted as chlorine. (7) There are no indications of the excretion of alkali salts of ethereal sulphuric acids. The negative correlation between ethereal sulphuric acid and water requires further investigation. It seems probable that this method would lead to important results, but the labor involved is immense, as at least fifty specimens of urine should be used for the calculation.

British Medical Journal.

February 25, 1922, ii, 3191.

1. Hunterian Lecture on the Nature and Cause of Old Age Enlargement of the Prostate. Kenneth M. Walker.
2. Metabolism of Children Undergoing Open-Air Treatment, Heliotherapy, and Balneotherapy. Leonard Hill and J. Argyll Campbell, with the co-operation of Henry Gauvain.
3. Streptococcal Infection by the Nasal and Buccal Paths. Daniel C. Edington.
4. The End-Results of Sanatorium Treatment of Tuberculosis: A Record of Seventeen Years' Sanatorium Work. F. W. Burton-Fanning and W. J. Fanning.
5. Hemorrhagic Colitis. J. W. Geary Grant.
6. Note on the Intrapleural Pressures in Artificial Pneumothorax. James Lawton.
7. A Case of Megacolon. E. R. Flint.
8. Gastroenterostomy and Some Dietetic Rules.

1. The Nature and Cause of Old Age Enlargement of the Prostate.—Kenneth M. Walker reviews the various theories to account for old age enlargement of the prostate, and concludes that it is impossible to explain it by any theory of chronic inflammation alone. Although enlargement may reproduce conditions favorable to the development of a neoplasm, the enlargement itself does not come into the category of true tumors. The condition is in the nature of a fibro-epithelial degeneration which finds its analogy in the female in serocystic disease of the breast. This degeneration may be regarded as an accident occurring in the progress of involution of the genital tract. The cause that determines the onset of the condition is unknown, although it is not improbably connected with a loss of endocrine balance occurring during this period. The writer's observations indicate that injections of extract of prostate in the human being do not produce any response in the way of alteration of blood pressure, respiration, etc. He has used both autolysit and commercial preparations of prostatic extract for this purpose and has never obtained a reaction that could be appreciated clinically. Incidentally, he mentions that he has found that prostatic extract, when employed as a therapeutic measure, is occasionally of use during the early phases of enlargement, but of little benefit in the later. Answers received to a questionnaire inquiring into the incidence of prostatic enlargement in the various countries of the world brings out the fact that prostatic enlargement shows a definite distribution that is anthropological rather than geographical in character. It very rarely occurs among Mongolians or Negroes. Generally speaking, enlargement is commoner among meat eaters and those leading the sedentary lives of cities than among vegetarians and frugal livers.

2. Metabolism of Children Undergoing Open-Air Treatment, Heliotherapy and Balneotherapy.—Leonard Hill and J. Argyll Campbell, with the cooperation of Sir Henry Gauvain, made these observations on children crippled with surgical tuberculosis and lying fixed in splints in bed and more or less nude, at Lord Mayor Treloar's Hospital, Hampshire. It was found that their metabolism on the average was increased 40 per cent. above the standard for the same weight of children confined in the closed calorimeter. After three months' treatment, including graduated exposure to open air and heliotherapy, their metabolism out of doors was 20 per cent. above that in well ventilated cubicles soon after admission. Children who had been treated for many months showed high metabolism in the out of door conditions, those who pigmented well in the sun giving about the same figures as those who did not pigment well, after making allowance for weight. The former gave the better figures for weight. It is considered that the rise in metabolism caused by heliotherapy *per se* is insignificant compared by that caused by exposure to open air. At the same time the value of heliotherapy as a factor toward the arrest of the disease is not disputed. Children on admission in well ventilated cubicles gave results about 20 per cent. higher than basal standards for closed calorimeters. It is considered that the open air conditions in the former were mainly responsible. The bodily tone and general condition of the children under the specially graduated treatment is remarkable when the long period of immobilization in splints in bed is considered. It is suggested that the treatment might be applied with advantage in other cases involving long confinement in bed.

6. Note on the Intrapleural Pressures in Artificial Pneumothorax.—James Lawton calls attention to a feature which has not, so far as he is aware, been noted and which deserves the consideration of those called upon to supervise the treatment of artificial pneumothorax cases, namely, the alteration which takes place in the intrapleural pressures with a change in the position of the patient. A consideration of the pressures in a number of cases investigated shows that there is a constant rise in the pressures when the patient is moved from the lateral to the dorsal position. The importance of this observation will be recognized when an attempt is made to reestablish a previous pressure. This obviously can only be done with certainty when the patient occupies the same position on both occasions. Emphasis must, therefore, be laid on the fact that any statement of intrapleural pressures must be accompanied by a statement of the position of the patient. Further, while the amount of the rise varied not only with the different cases, but in the same case, it was noted that the pressures were frequently doubled. In a few cases in which the pressures in the erect posture were investigated it was found that they approximated those found in the dorsal position.

Le Progres Médical.

January 14, 1922, l, 2.

Sexual Instinct and Erotomania.—Laignel-Lavastine states, following Freud, that the libido is the psychic phase of the sex instinct. In psychiatry the rôle of the latter is considerable. Sexuality colors delirium; its manifestations may become pathological from their intensity alone and may also be perverted. In connection with delirium with sexual content the author mentions the jealousy delirium of the alcoholic, which is known to the laity. "Erotic drunkenness" is the term used for the man who becomes infuriated by resistance to his approaches. This behavior has nothing in common with sadism, although suggestive of it. Satyriasis and nymphomania are hardly deserving of the term "excess of sexuality," being purely an expression of the much narrower genital instinct. Sexual perversion may be of so elastic a conception as to include concupiscence and everything outside of the desire for offspring. It may be conceived as making a game or sport out of a solemn function. The author gives his conception of erotomania, a term which is used very loosely. He means by it a psychosis in which a fixed idea predominates. It agrees in general with reasoning mania, which would have been a sufficient diagnosis to some of the older alienists, and the term monomania would have covered the condition with others. The cases cited by the author are complicated. One was that of a widow who had a supposed suitor. She conceived the fixed idea that a certain servant girl had been recommended only to keep her under observation and finally that the girl, the suitor, and others were conspiring to force her into marriage. In time she desired to spite the suitor for his supposed cowardly treatment of her and eventually shut herself up. She was finally interned. In other words, this woman although she may be said to have had "love on the brain" had no desire for any object of love and no love contacts of any kind, yet she had woven a most complicated systemized delusion about the supposed passion of a man for her.

Rationale of Mineralization in the Treatment of Cancer.—That some connection exists between the rate of cancer growth and the presence or absence of some of the normal salts of the body has long been felt, although data are hard to obtain. The apparent contradiction among data may be due to the fact that a rapidly growing cancer may show a mineral hunger, while in an old sclerotic cancer which is almost stationary there may be a deficit of the same salt. A. Robin. writing recently of silica, lime, and magnesia in connection with cancer, reports the results of certain experiments which show that cancer fixes these bodies to a notable extent. Since they doubtless are fixed only by the connective tissue which is antagonistic to cancer growth they may be regarded as assisting the natural defense.—*Le Bulletin Médical.*

Book Reviews.

PRÉCIS DE PARASITOLOGIE HUMAINE. Par M. NEVEU-LEMAIRRE, Professeur Agrégé des Facultés de Médecine, Chef des Travaux de Parasitologie a la Faculté de Médecine de Paris. Cinquième Édition Revue et Mise a Jour. Libraire Scientifique et Littéraire. Price, frs. 24.50. Paris: J. Lamarre, 1921.

THIS is a pocket size epitome of human parasitology that, so far as it goes, is more complete than any other book of its type with which we are familiar. After a few pages of general definitions the author takes up in systematic fashion all of the known human parasites. Chapter I on bacteria is very brief being scarcely more than a mention of the principal species. The bulk of the work is devoted to the fungi and the animal parasites. The principal genera and species are described briefly and a few words said concerning their pathogenicity and in some cases the treatment of the disease produced by them. The rarer, less important or imperfectly established species are each given a few lines sufficient to indicate their relative position in the scheme. So far as the mention of species is concerned the work is extraordinarily complete. There are numerous illustrations. No attempt is made to discuss cultural characteristics, methods of staining, etc. This edition has been thoroughly revised and the volume contains more material, though by changes in size of type it is actually smaller than the fourth edition. It should be very valuable as a handy book for rapid identification of fungi and animal parasites. We could wish that the author had been able to include in the text the references together with the names and dates in his listings of various species but suppose it would have added too much to the size and the cost of the book.

THE MEDICAL CLINICS OF NORTH AMERICA. Published bi-monthly by W. B. Saunders Company, Philadelphia and London. Price per year, $12.00. Volume 4, Number 6, May, 1921, Boston Number. Volume 5, Number 1, July, 1921, Chicago Number.

THE May number contains contributions from nineteen representative clinicians in Boston. The contributors are of such promience and their contributions so many that it is not possible to comment on each of them and not easy to select those of the greater importance. The ones that appealed to us as being most valuable are Christian's discussion of diuretics, Minot's presentation of two cases of anemia, Robey's talk on malignant disease of the lungs and Peabody's article on the vital capacity of the lungs in heart disease. Minot shows very well the method of reasoning that should be followed in the diagnosis of types of anemia and the futility of attempting to diagnose pernicious anemia solely by the examination of the stained blood smear. "Everybody" recognizes the truth of his conclusions but it is none the less necessary to emphasize them frequently.

In the July number Chicago contributes 272 pages of case reports and discussion from her foremost clinics. The article on pericarditis with effusion by Williamson is timely and thorough and gives us a new sign which should aid in its recognition. Bassoe's presentation of endocrine growth disturbance is interesting and well illustrated. Elliott shows what may sometimes be done in the treatment of myeloid leucemia. Gerstley reports a successful tonsillectomy in a thymus case and expresses his opinion that we have been too fearful of operating in these cases.

Both of these issues are good examples of the value of this type of publication when carried out in the proper way. The reader is presented with a brief discussion of a large number of subjects each of which is discussed with sufficient completeness to give him a fair idea of the topic and to stimulate him to further investigation of his own if he is interested in the subject.

COLLECTED PAPERS OF THE MAYO CLINIC, Rochester, Minnesota. Edited by Mr. M. H. MELLISH.. Vol. XII, 1920, Published September, 1921. Price. $12.00. Philadelphia and London: W. B. Saunders Company, 1921.

THE contributors to this volume number sixty, the majority of them workers at one time or another in the Mayo Clinic and also on the Mayo Foundation for Medical Education and Research, Graduate School, University of Minnesota, only eight of them being on the Foundation alone, and another eight in the Clinic alone. The contributions number 125, grouped under the headings: Alimentary Tract; Urogenital Organs; Ductless Glands; Heart; Blood; Skin and Syphilis; Head, Trunk, and Extremities; Nerves; Technic; and General. The wealth and variety of material contained in this volume of nearly 1400 pages are enormous and nearly every one, no matter what his special line of study, will find much here to attract his interest and increase his knowledge. A little out of the line of scientific communications, but of great interest is the account, by Dr. W. J. Mayo, of a trip to the principal capitals of South America with a description of the hospitals and medical schools in these countries. This paper and the article by Dr. Sharpe, recently published in the MEDICAL RECORD, reveal a field of intense medical activity in our own hemisphere which in the old days, when Berlin was the Mecca of the faithful, was unknown to us. A clear union with our neighbors to the south of us would no doubt be mutually beneficial and papers such as those mentioned will do much to promote this.

OBSTETRICS AND GYNÆCOLOGY. Edited by JOHN S. FAIRBAIRN, M.A., M.B., B.Ch. (Oxon.), F.R.C.P. (Lond.), F.R.C.S. (Eng.) Obstetric Physician, St. Thomas's Hospital; Lecturer on Midwifery and Diseases of Women, St. Thomas's Hospital Medical School; Physician to the General Lying-in Hospital, York Road, S. E.; Examiner in Midwifery and Diseases of Women to the University of Oxford and to the Conjoint Board of England; Member of the Central Midwives Board; Vice-president, Section of Obstetrics and Gynæcology, Royal Society of Medicine, etc. Price, $20.00. New York: The Oxford University Press, American Branch, 1921.

THIS is an encyclopedic treatise, or system, dealing with obstetric art and all matters relating to the diseases of women, written by a large number of contributors. Many of the latter are men known almost as well by name on this side of the Atlantic as in their own country, while the names of others, who are no doubt recognized as competent authorities by their British confréres, are not so familiar to their brethren in these specialties in America. The work is divided into seven parts, treating respectively of the Life History of the Female Reproductive Organs, Normal Reproduction, Abnormal Reproduction, The Infant, Diseases of Women, Public Health, Social and Medicolegal, and Operations and Other Therapeutic Procedures. It is impossible, in a notice of this length, to review all the articles or even one of the sections. The articles vary in importance and in satisfactoriness of treatment, as is invariable and to be anticipated in a work written by so many contributors, but we should say that, taken all in all, they are of an unusually high order of excellence. The work is intended more for the family physician, whose shadow, alas, is ever growing less, than for the specialist or consultant in obstetrics or gynecology, but even the latter will find a good deal to interest and perchance instruct him and may get some valuable hints from it that will help him famously in an emergency. The price of the book seems high, but thanks to the one-time German emperor and his advisers the cost of all medical books and every other necessity is high. There is an excellent index, filling forty-five of the 950 pages of the work.

DIATHERMY, ITS PRODUCTION AND USES IN MEDICINE AND SURGERY. By ELKIN P. CUMBERBATCH, M.A., B.M. (Oxon.), M.R.C.P., Medical Officer in Charge, Electrical Department. St. Bartholomew's Hospital, etc. Price, $6.00. St. Louis: C. V. Mosby Company, 1921.

THIS is a book of 193 pages and 44 illustrations. The eight chapters comprise an introduction, a historical note, accounts of production of current and installation, the physiological effects of diathermy, the elevation of temperature by diathermy, and the medical and surgical uses. The clinical discussion begins on page 65 and extends to the finish of the volume, numerous case histories being introduced. The author uses the Siemens model, Dean model, and the apparatus of the Medical Supply Association with Schall's portable. The latter requires a direct current, while the others are supplied by the alternating street circuit.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON MEDICINE.

Stated Meeting, Held December 20, 1921.

DR. SAMUEL BRADBURY IN THE CHAIR.

THE program of the evening was contributed by the Graduate School of Medicine of the University of Pennsylvania.

The Nature of the Wassermann Reaction in Relation to Its Clinical Value and Standardization of Technique.—Dr. JOHN A. KOLMER of Philadelphia made this presentation, in which he said, in part, that the Wassermann reaction occupied a very unique position among immunological phenomena. At first regarded as a specific reaction, it was now known to be biologically nonspecific, but in most parts of the world this did not seriously reduce its diagnostic value in syphilis because the peculiar antibody-like substance in the blood or spinal fluid or both, and responsible for the reaction, was known definitely to occur only in syphilis and frambesia tropica or yaws. Infection with spirochetes of these two diseases resulted in the elaboration of a substance aptly called "reagin" by Neisser, which had the property of uniting or reacting with certain lipoidal substances, the resulting complex regarded as a precipitate by some investigators, being able to absorb or fix hemolytic complement in the test tube. This reagin was probably produced by the cells directly in contact with and stimulated by the spirochetes; it was first found, therefore, in the tissue juices of the chancre as recently shown by Klauder and the writer. As the spirochetes were disseminated through the body the tissues of various internal organs, including those of the brain and spinal cord, very probably participated in the production of this Wassermann substance or "reagin." It might be that the lipoids of the spirochetes were antigenic and induced the production of the "reagin," but so far all attempts to produce antibodies with pure lipoids had failed, and even if it were true, one would expect a certain degree of specificity on the part of these lipoids which had not been demonstrated. This view did not coincide with the present conception of the tissues usually concerned in antibody production in infectious diseases; there were no valid reasons for regarding this cellular reagin as a true antibody. In the first place, the amount to be found in the body fluids bore a more or less direct relation to the severity of infection, although this relation might not be clinically apparent if the spirochetes were active in tissues of minor physiological importance. In the second place, it might be present during the latent or resting stages of the disease in such small amounts as to escape detection, whereas, if it were a true antibody capable of forcing the spirochetes into these periods of latency it should be demonstrable in large amounts. For these and other reasons the Wassermann reaction was to be regarded as an index of the degree of infection rather than of immunity, and if this was true the phenomenon was unique, not only for this reason but likewise because of the peculiar nature of the reagin. This reagin had the power of fixing complement in the presence of a suitable suspension of lipoids. It was probably not itself a lipoid or identified with the lipoid content of serum or spinal fluid, although this phase of the subject was by no means a closed chapter. The important practical question was: Might similar cellular reagins be produced in diseases other than syphilis and frambesia capable of bringing about the physicochemical phenomenon of complement fixation in the presence of extracts of lipoids? When one remembered the many chances of technical error capable of involving every important element and phase of the test, the answer must be given with great caution. Furthermore, might not pregnancy, an intercurrent infection, a metabolic disease, and so on, stimulate latent foci of syphilitic spirochetes into activity with the production of reagin just as trauma might be provocative or stimulating? While not disclaiming the possibility of observing positive Wassermann reactions with a correct and acceptable technique in non-syphilitic diseases, Dr. Kolmer said he knew the clinician was not always infallible in his judgment, that syphilis could escape clinical detection and that these unexpected positive reactions were not always due to laboratory error. The final answer to the question could not be given, but he would venture the prediction that the answer would be negative and that as clinical and pathological knowledge of syphilis was developed, and more especially as the complement fixation technique was perfected, more and more emphasis would be placed on what might be called the "syphilitic significance" of these unexpected and weakly positive reactions with the sera of individuals regarded tentatively as non-syphilitic. A source of clinical error worthy of keeping in mind was that a positive Wassermann reaction did not necessarily mean that a particular lesion was syphilitic; for example, a tuberculous ulcer might occur in the larynx of an individual with latent syphilis and fail to improve with antiluetic treatment. False reactions might be due to the presence of insufficient amounts of reagin in the blood or spinal fluid or to technical errors. Therefore the technique of the Wassermann reaction should be as sensitive *as was possible with specificity*. Even then false biological reactions would occur for the very good biological reason that where "reagin" was practically absent from the serum and spinal fluid it could not be detected in the test tube. Again, it was worth while remembering that while "reagin" might not be present in the blood in sufficient quantities to be detectable, sufficient might be present in the spinal fluid for yielding positive results. The reason was unknown. In the writer's opinion, it was possible to avoid technical errors and greatly improve the diagnostic status of the test, and it should be the aim and purpose of serologists to evolve a test capable of correctly detecting the disease when this was not possible by clinical means; the Wassermann test failed in its ultimate mission and purpose if it failed to do so. During the past six years, with the assistance of his colleagues, Dr. Kolmer had been engaged in a series of investigations aiming to study every phase of complement fixation in syphilis for the purpose of building up a test possessing a maximum degree of sensitivity with the minimum possibility for yielding non-specific reactions. These investigations had been conducted without preconceived ideas and without bias, and had finally enabled them to build up a new complement fixation test for syphilis which he hoped others would find as satisfactory as they had, and that clinicians and serologists would at least consent to give it a fair trial alongside of their own technique. He had not called their test a standard test because it must earn that designation by common consent. A new antigen and many technical improvements had been included in order to give the technique five qualifications, as follows: (1) As high degree of sensitiveness as was permissible with practical specificity; (2) technical accuracy and uniformity in results, in so far, at least, as positive and negative reactions were concerned (slight variation in the degree of positiveness would occur, but these did no harm so long as the primary question of whether a serum did or did not yield a positive or negative reaction was answered); (3) yield a truly quantitative reaction in order to give an index of spirochetic activity and the influence of treatment; (4) be technically simple in order to reduce the minimum of error; and (5) economical of time and materials in so far as this was consistent with the best work. It was not a shortcut method and did not aim to be because too many sources of error required attention and correction to fulfill the primary aim of sensitiveness and specificity. Standardization was desirable if these aims were served and satisfied. Mere unification of results in Wassermann tests in different laboratories meant little or nothing unless the test was technically correct and as sensitive as was possible with practical specificity. He believed standardization was possible under these conditions.

Dr. JOHN A. FORDYCE said that Dr. Kolmer's wide experience with the Wassermann reaction, together with his knowledge of immunological processes, caused one to listen to anything he might say with much respect. His associations with Dr. Schamberg and other excellent clinicians had enabled him to carefully correlate the results of his Wassermann work with men of

wide experience. In this way he had been able to develop a technique which was perhaps as accurate as that by anyone at this time. It was a great satisfaction to learn that his views were so closely in accord with our own. For the last ten years in their public and private work, Dr. Fordyce said they had been endeavoring to develop a Wassermann technique on similar lines, that was, a careful correlation of the results of the test with their clinical work. Their knowledge of the disease had been enormously increased by the revelations of the Wassermann reaction. Its use had supplied proof as to the syphilitic nature of many conditions where it was only surmised as the etiological factor. The necessity of proper technique and proper standardization of method therefore was obvious. In answering the question as to what were the criteria of a proper technique, Dr Fordyce said in a general way it might be stated that a positive reaction should be obtained in known active syphilitic cases and a negative reaction in known non-syphilitic cases. The employment of the same technique over a period of years and the careful correlations of results with clinical observation was the best guide as to its value. Although the original claim that the reaction was a specific antigen-antibody one had not been confirmed, it was sufficiently specific to more than justify the claim as to its diagnostic value. The contradictory results obtained in the same patient from different laboratories were explicable in part by the different technique and especially by the different antigens employed. One laboratory using cholesterin reinforced antigens would report a negative reaction and another laboratory using crude alcoholic extracts with icebox incubation would obtain different results. These varying reports were found chiefly in cases of old infection or in treated cases. In recent syphilis it was the rule to obtain strongly positive reactions with both of these methods. The lesson to be learned from this varying reaction was that serum from suspected individuals should be tested by both of the methods in question. In making a survey some time ago of several hundred cases in which a discrepancy between the two methods occurred they found that about 50 per cent. were positive with the cholesterin antigen and negative with the crude alcoholic extract while the remainder were positive with the alcoholic extract only. As to other conditions which gave positive reactions which might lead to confusion, in yaws, a tropical disease, closely allied to syphilis in which the organism was morphological identical and the clinical picture in certain phases indistinguishable, the blood gave a positive reaction. In tubercular leprosy it was at times difficult or impossible to eliminate the possibility of syphilis because of the occasional occurrence of a positive reaction. During pregnancy a certain number of cases gave a positive fixation with cholesterinized antigen. In their clinic they found that in 25 to 35 per cent. of the patients referred to them by maternity hospitals because of a strongly positive reaction with cholesterinized antigen alone, a negative reaction was given with all methods when these patients reported several weeks after delivery and it continued so on repeated examination. It was frequently stated that in diabetes a positive Wassermann reaction was met with. They had occasion to examine many cases and were unable to corroborate this contention. They had also been unable to confirm the reports of a positive reaction in malignant disease unaccompanied by a specific infection as claimed by Warthin. Carcinoma of the mouth not infrequently developed on syphilitic soil. The accompanying lymph nodes sometimes showed syphilis. A long experience in the interpretation of the reaction had led them to modify considerably some of their former views. Some years ago a repeated negative reaction in the blood was looked upon as an accurate criterion of cure. They now knew that many such patients had a positive reaction in the spinal fluid while the blood remained persistently negative. Furthermore, a weakly positive reaction in a patient with a definite history of syphilis was an indication for further treatment. A reaction of this kind reported from an outside laboratory was usually considered negligible. Before this interpretation was placed upon it, the history of the patient together with the amount of treatment he had received should be carefully considered. In expressing an opinion regarding the question of cure or the absence of a syphilitic infection, the Wassermann reaction of the blood as well as of the spinal fluid should be carefully correlated with the previous history of the patient. He had often been aided in his interpretation of a Wassermann reaction by opinions from his colleagues as to the clinical findings which were present. In several cases an eye ground examination had shown the existence of vascular disease with degenerative changes in the presence of a negative blood. In some cases the vascular degeneration was a progressive one and was met with in the early stages of syphilis. It would therefore be fatal to such patients to state that the syphilitic infection had been cured. It was in cases like these, and similar ones with localized lesions, that they obtained a negative reaction in the presence of active disease. Some of these cases two or three years later might show evidence of hypertension and it was a question whether all syphilitics should not be under observation from time to time for a cardiac and ophthalmological examination, and whether their intensive salvarsan mercury treatment should not be followed up by iodides. The possibilities of error in the interpretation of the Wassermann were more numerous on the negative than on the positive side, and might briefly be formulated thus: The blood was negative in about 6 per cent. of late active cutaneous and sometimes in early malignant syphilis; in a certain percentage with cardiovascular syphilis; in certain localized progressive vascular affections of the eye. In congenital syphilis one occasionally saw infants with clinical findings of the disease, but serologically negative. The blood sometimes became strongly positive after treatment. In the following types of neurosyphilis the spinal fluid was often negative and the blood might be negative or positive: Vascular neurosyphilis abortive tabes and the late degenerative stages of the disease, sometimes in the terminal stages of paresis, epilepsy, in which cerebral gumma and syphilitic psychoses were usually accompanied by a negative Wessermann in the fluid. In summarizing one could say with a certain degree of assurance that a persistent positive reaction controlled in several laboratories meant active spirochetes in some part of the body. Autopsy findings in cases with a history of syphilis where death resulted from some intercurrent affection showed that in over 90 per cent. the aorta was the site of a lesion and that in over 40 per cent. the viscera were involved. A persistent negative reaction in the blood and spinal fluid after intensive treatment indicated cure in a great majority of cases, but since cured cases did not go to autopsy this statement was not susceptible of pathological proof; however, the subsequent histories of these patients with their marital history and healthy children supported this view. The exceptional cases on the negative side could not take away from the value of a negative Wassermann reaction, and neither could they be accepted as proof that syphilis was incurable. The pessimism of the pathologist as to incurability was largely based upon findings in patients who had been insufficiently or improperly treated. Strong clinical evidence was further met with in cases where symptoms relapsed while the blood remained positive. They had seen repeated relapses in interstitial keratitis while the blood continued positive and had noted their absence after the blood remained negative. Among the problems for the future to determine was the possibility of altering a Wassermann fast reaction. He found that in many cases treatment over a period of two or three years with proper intervals of rest would reverse the reaction to negative. In these cases mixed treatment was of decided value.

Dr. KOLMER, in closing the discussion, said that he had greatly enjoyed and had been instructed by Professor Fordyce's remarks. He stated that at the present time he was interested in applying his new complement fixation test in a study of those diseases which have been reported from time to time as yielding falsely positive Wassermann reactions in the absence of syphilis. Through the courtesy of the Surgeon General and Dr. Oswald Denney of the United States Public Health Service, he was able to study the sera of lepers with both the nodular and anesthetic types of the disease; so far the reactions had been uniformly negative, except in a few cases where syphilis was suspected clinically. Dr. Kolmer said that he believed that the

blood in leprosy yielded negative Wassermann reactions unless the patient was syphilitic. Dr. Kolmer stated that in late pregnancy he had observed the positive reactions mentioned by Professor Fordyce, which disappeared after delivery. He stated that he had not observed these reactions with the new technique, and believed that they might be due to the use of an excessive amount of cholesterol in the antigen. He stated that in the new antigen cholesterin was not used in amounts larger than 0.1 per cent. to 0.2 per cent. Dr. Kolmer stated he would not be surprised, however, to observe positive Wassermann reactions in pregnancy, and especially among women with latent syphilis in whom pregnancy might act in a provocative manner similar to the stimulation of syphilitic processes by trauma. Dr. Kolmer stated that time did not permit a discussion of the multitudinous technical details involved, but that he thought best results were dependent upon the use of a superior antigen and a primary incubation of sixteen to eighteen hours in a refrigerator at 6 to 10 degrees Centigrade.

The Diagnosis of Pulmonary Tuberculosis from the Standpoint of the Industrial Physician.—Dr. FRANK A. CRAIG of Philadelphia presented this contribution, in which he said it seemed hardly necessary to call attention to the importance of the early recognition of pulmonary tuberculosis among industrial workers, but he believed we could not lay too much stress upon this point for several reasons. First, the patient with tuberculosis which was recognized early, in the large majority of instances might regain his working capacity with the loss of a comparatively short period of time, while the patient in whom the disease became advanced before being recognized might only rarely regain his working capacity, with the loss of considerable time, even if he did not lose his life. In the second place the early recognition of tuberculosis was important from the standpoint of prevention, as the open, careless case of tuberculosis constituted a risk to his fellow workmen. In the third place the study of tuberculosis incidence rates in various occupations also possessed value from the standpoint of public health and occupational morbidity. For the detection of the disease in its early stages, in various industries, entrance examination combined with periodical reexamination of all employees would seem to be the only really effective method which we possessed at the present time. One plan that has been fairly generally employed by a number of industrial plants was that devised by Sochs, which consists in an entrance examination and reexamination of only those who showed suspicious signs at the first examination. The figures obtained under this plan showed a rather low incidence as compared to the rates which Mock gave in his recent work on industrial medicine and surgery. Among the police and firemen of Philadelphia they had found an incidence of positive tuberculosis of 1.43 per cent., and 2.31 per cent. if they included those markedly suspicious. These figures did not include any of those cases suspected of apical fibrosis, which were considered separately, but only those in which they had some good reason to suspect the presence of actual disease. They had thought that perhaps some scheme of selection might be devised by which cases which should receive a more detailed examination might be indicated by some means other than physical examination. Every chest would by this methods be examined, but special attention would be given to those cases which showed some certain indication of this disease. With the hope of developing some such plan they had studied the cases of tuberculosis which were encountered in the examination of the police and firemen of Philadelphia, which was conducted by the Phipps Institute of the University of Pennsylvania. The diagnostic standards as set up by the National Tuberculosis Association were not applicable to these industrial surveys, as they were based, to a considerable extent, upon the history of the patient. In this survey weight, temperature, pulse, and blood pressure were tabulated in 132 cases of tuberculosis. These cases were divided into five groups as follows: Suspected tuberculosis; possible tuberculosis; probable tuberculosis; arrested tuberculosis; definite tuberculosis. As a result of their experience in this survey they believed that for the early detection of pulmonary tuberculosis there could be no question that the carefully conducted health survey was the most valuable means at our command, especially valuable being the entrance examination combined with periodic reexaminations of the entire force. The tuberculosis incidence rates which appeared in the literature as the findings of medical examiners in their studies of numerous industrial bodies were so lacking in uniformity, and were so infrequently unaccompanied by qualifying, defining or explanatory information that they were almost valueless for comparing the findings of one industry with those of another. It would seem as though some standardized method for reporting such cases was definitely needed before it would be possible to establish average tuberculosis rates for various occupations. The conclusions drawn from this survey were as follows: (1) The examination of large bodies of men for the presence of pulmonary tuberculosis presented many, but not insuperable, difficulties, and in each case the diagnosis must rest upon a careful correlation of all the findings. While the most important information was that gained by a physical examination of the patient, including inspection, palpation, percussion and auscultation, there were other methods of study which possessed considerable value in the formation of a diagnosis. (2) The *history* of the case was of the utmost inportance, but was seldom obtainable in the study of large groups of men. (3) In the routine examination of large bodies of men the recording of *temperature* seemed to be of questionable value, although it might prove invaluable in the study of individual cases. (4) From the standpoint of tuberculosis the recording of the *pulse rate* offered very little if any information of value. (5) Loss of weight was a finding of considerable value and one which was readily obtained. The age and height must be taken into consideration in studying the weight of the individual. (6) Systolic *blood pressure* which was below the normal for the age of the patient was a very suggestive finding. The recording of the blood pressure should be included in the study of every large body of men for many reasons.

Dr. HAVEN EMERSON said he had not come prepared to discuss the paper, but he could not refrain from saying a few words, since the paper brought up some very interesting points in regard to the advantages of periodical physical examinations and the discoveries a physician made whenever he took a group of people who thought they were well and submitted them to a rigorous medical examination. The New York City Department of Health in 1914 instituted physical examination of its employees, and it was a surprise to find so many cases of undernutrition, overnutrition, incipient tuberculosis, cardiac disease, high blood pressure, previously unsuspected diabetes, etc., as were revealed among these 3,000 people who were supposedly well. As a result of these examinations and advice given to employees there was in three years a reduction from 5 per cent. to 2 per cent. of the number of days of absences from work on account of sickness. Examination of a group of college students presumably in the best of health always elicited a large number of cases of tuberculosis. The campaigns waged in a national way for prevention of tuberculosis, cancer, mental hygiene, etc., all depended for their results upon the early detection of disease in presumably healthy people. Dr. Emerson said he agreed with most things Dr. Craig had said, but he could not agree that it was impracticable to take time to examine the chest among industrial workers unless there was a loss of weight or some other particular disturbance suggesting the possible presence of tuberculosis. It was possible and necessary to make a thorough examination of the chest in every employee if a good service was to be offered. He did not see how any employer of people or any physician who had supervision of an industrial group could square himself with his conscience without seeing that the chest was examined in every instance. Without such an examination he assumed responsibility for failing to discover conditions that might lead to serious disease and to fatalities. With reference to Dr. Craig's classification, it was a pity to introduce new terms when we had the admirable classification made by Turban. If one adhered to the classification that was advised by the National Tuberculosis Association he was readily understood by everyone. The dispensary committee organized by the New York Academy of Medicine felt very

strongly the necessity of supplementing dispensary service for the sick with a service for the presumably well where people who thought they were well but did not know how sick they were might receive the benefit of a thorough physical examination and be referred to a physician for treatment if they were found in need of medical attention. In the first 100 persons examined there was a large collection of the early stages of disease not recognized by the persons who had these conditions. A physician was hardly worth his salt if he could not beat the patient to the disease. If the physician could not recognize the early stages of disease before the patient did he was little better than the patent medicine man. The old principle was to wait until the patient complained and then start treating something the patient had detected himself. The periodical medical examination was pushing back the boundaries of medicine to the stage where one could accomplish curative treatment. Periodical medical examinations would do more to prevent sickness than any other single resource of preventive medicine. It was the foundation stone of all activities in the way of public health work. Our aim should be a physical examination for every individual at least once a year, oftener under the age of five, and always after complete apparent convalescence from any acute febrile or infectious disease.

Dr. CRAIG, in closing the discussion, said he did not wish to be misunderstood in regard to the examinations. Every one of the firemen and policemen was given a complete examination of the heart and lungs, but there were some cases in which something more seemed necessary. For instance, should a certain man's temperature be taken every afternoon, or should a man have an *x*-ray examination? There were cases that needed more attention than the routine examination. He did not wish to leave the impression that any of these men were slighted for all were carefully examined. In regard to the question of terminology, Dr. Craig acknowledged that it was a mistake to make a new classification. He had often remarked on the lack of standardization of classification in published works, and he was guilty with the others.

The Need of Social Service in Private Practice.—Dr. H. R. M. LANDIS, M.C., U. S. A., spoke informally on this subject. After apologizing for what he termed a rather trivial presentation, he said it was hardly necessary to recall that in 1905 when Richard Cabot introduced social service in connection with hospital work, it was viewed with skepticism. However, its usefulness soon came to be recognized, and today there were few hospitals in the country that did not have social service departments. This method having once come before the public it developed very rapidly. This was not the first time that the method had been employed. It developed as far back as 1880 in England where it was used among the insane. The plan had two advantages. It placed the physician in possession of information he would not have otherwise, and then the medical work must be well done if the social service work was to be as effective as it should be. The medical profession as a whole had not seized upon social service work with the avidity one might have expected. It happened to him quite a number of times each year that an individual presented himself and asked his advice. He would state that he had been told that he had tuberculosis and had been to consult an eminent authority who had given him advice that he could not carry out. The difficulty in those instances was that the physician giving the advice had no knowledge of that patient's background or of his financial resources. Perhaps he was advised to go to some place in the far West, an undertaking his resources would not stand. He might not even have the railroad fare. The Southwest had been flooded with tuberculosis patients with no financial means and no means of self-support, and eventually they became public charges in a community where they were complete strangers. Formerly the family doctor and the general practitioner had the opportunity to know the background of those men. The relations of the family physician with his patients was vastly different from those of the purely medical consultant. The patient consulted the family physician about all sorts of things, many of them not medical at all, and in that way the family physician learned the social and financial background of his patients. Then very often the giving of this impractical advice was simply due to carelessness. The consultant was in the habit of advising people who were able to carry out his advice, and then when a man came to him who had succeeded in some way or other in getting together enough money to pay his fee, he gave him the same advice he was in the habit of giving his well-to-do patients, and the man could not carry out the advice. Dr. Landis said that at the sanatorium with which he was connected many patients came from outside of Philadelphia. They came seven out of ten times with moderately advanced lesions, the type of case utterly unsuitable for that institution which took only incipient cases. Patients were sent who ought to be put in bed. It happened to be his duty to explain to those patients that they could not be admitted. The idea that they could not be admitted was utterly foreign to them and when told that the institution could not accept them they received a shock they should have been spared. These patients had usually been sent by a physician and the explanation that they could not be admitted was usually followed by a letter from the physician taking him to task something like this, "If this patient is not a suitable case what sort of a case would you take anyway?" "Surely this patient has tuberculosis and is in need of care." The physician should provide himself with the knowledge of the type of cases an institution cares for and should not give the patient an idea he was going to be admitted unless he knew definitely that the patient was suitable for admission to that institution. It would be better if the physician would simply send the patient for examination and then the admitting physician after examining the patient, could send his findings to the physician who had referred the case and the patient could then take up the matter of the course to be pursued. That was where the advantage of social service came in. When a patient came to a dispensary and the physician found that he was suffering with tuberculosis he was turned over to the social service department and the social workers saw that he was placed in the proper place without any of the disagreeable features that had been referred to. Another feature of the care of private patients that required consideration and where there was need for tactful handling by the trained social service worker was in the private floors of general hospitals. Dr. Landis said he knew of no place where there were more annoyances than on the private floors of hospitals. These annoyances ranged all the way from trivial irritations of the patient to those of serious consequence. Another place where tactful handling was much needed was in the admitting room of general hosiptals. We were trying to teach the people that the hospital was a place not only for the ill but that its function was to educate and serve the community. Yet, if a person became ill and was shipped off to a hospital, he was first interviewed by a clerk, who inquired his name and address, and the name and address of the person to be informed if all did not go well with him; he was then asked to pay in advance and was ushered to a waiting room, where, after waiting indefinitely, someone came along and asked him whether he was Mr. So-and-So and told him that the doctor would see him. By that time the patient's frame of mind was such that he did not care much what happened to him. No doubt hospitals lost many handsome subscriptions by the tactless way in which they received private patients. A great deal of this was a hospital problem and a problem of those attached to hospital staffs, but it was also a problem that concerned the physician dealing with patients outside the hospital. This lack of knowledge of the patient's background was something that we had lost in getting away from the family physician. Too often in sending the patient from specialist to specialist and in the private wings of the general hospital we had lost sight of the fact that this patient was a human being.

Dr. C. E. FORD said he could not agree with Dr. Landis that it was necessary to apologize for his presentation. He thought the sort of service advocated by Dr. Landis was a very important socio-economic endeavor. His work was confined to industrial medicine and for that reason he had a very keen appreciation of its value. In medical practice in industry one met a great many tuberculosis patients and it was felt that the

treatment of sickness not arising out of the occupation should be referred back to the private physician, but it had been found that the attitude of the private physician, practising in industrial districts, was such that it was necessary in many instances for the employing company to take charge of and hospitalize tuberculosis patients, pay their hospital bill and support the family in the manner in which they were accustomed to live during the period that the patient was in the hospital. This, of course, was a tremendously unfair burden upon the employer, but the attitude of the physician toward these cases by reason of failure to appreciate the social phases of the disease and give instructions accordingly, made the assumption of this burden necessary, if the patient was to be saved and made a self-sustaining social unit. There were many groups to which social service in private practice was valuable. It was of value not only to the employee but the employer as well. Dr. Ford cited numerous instances of cases that he had met. For instance, among a group of men recently pensioned was an individual 73 years of age—a master mechanic for a short time and assistant superintendent and employed continuously for 53 years; his wife was living—two adult children independent; his disability was senility. He had no money, no property and his life's savings were represented by $200 in Liberty bonds. A second case was that of a man 67 years of age, employed 30 years, wife living, 4 children—disability, senility. His resources were a $900 equity in the house in which he lived and nothing else. A third case was that of a man 62 years of age, wife and 8 children—total resources $60. Dr. Ford emphasized the fact that these men presented evidences of medical neglect; that these individuals were worthy was indicated by their prolonged period of employment which of itself was a warranty of character. Economic conditions were such that workmen employed continuously and having large family responsibilities were unable to secure the best that was offered in medicine, and it appeared that social service properly directed would be of inestimable aid to the physician as well as make a definite contribution to the standard of living of industrial workers. Socially minded medical men must devise some means of reaching this type of deserving citizens who constituted the bone and sinew of our country. The problem must be solved by the medical profession instead of leaving it to some irresponsible allied group. Medical men must be the leaders in these activities rather than allow the responsibility to rest with untrained inexperienced non-medical social workers.

A Prolonged Study of the Degeneration of a Myocardium.—DR. JAMES E. TALLEY of Philadelphia made this contribution, which was illustrated by lantern slides. He said he would feel that he should apologize for presenting only one case were it not for the fact that the patient had been observed and studied over six years. The patient discovered in 1910, while in China, that she had a slow pulse, the average was about 40, sometimes it was as low as 36, and occasionally as high as 50. She gave a history of an attack of fever thought to be malarial but it was suggestive that the fever began three months after she had given birth to a child; a latent infection was a possibility; she had had diphtheria, measles and attacks of tonsillitis; for some years she had had a cystitis, not due to the colon bacillus but to a Gram positive bacillus. She had five healthy children living, one had died in infancy. In 1916, she returned to this country and had been under observation since. From 1916 until about a year ago, the ventricular rate was 40, occasionally somewhat higher but never less than 36. She had an aortic systolic murmur not well transmitted and a systolic murmur at the apex that was well transmitted. There were no diastolic murmurs. The teleroentgenogram showed the heart much enlarged, especially in its transverse diameter. There was evident mitral disease, myocardial disease and persistent slow pulse. The patient's symptoms were not as severe as had been expected; she had had two fainting spells when the trouble first began. After returning to this country she conducted a school for the children of missionaries and took care of her own five children. She broke down under this strain and had to give up her position. For some six years her condition has remained practically the same, she remained much of the time on one floor, but went down to meals and since complete disassociation with flutter appeared, she had apparently been able to walk a little farther than formerly. There was only one threatened circulatory failure in which she developed slight edema of the legs, and her liver became slightly enlarged. This readily subsided. Electrocardiographic studies during these years showed that her slow pulse was due to a nodal rhythm, the impulse arising in the node or in the neighborhood of the node. About a year ago the patient first showed auricular flutter and complete heart block, the average ventricular rate being 30 to 32, the auricular rate from 220 to 240. Recently, at one sitting he was able to secure curves of transient right and left branch bundle block alternately; some weeks later the curves showed right branch bundle block alone. The curves were interesting, showing at one time auricular flutter, complete disassociation, branch bundle block, alternation, and premature beats. The question of varying ventricular complexes in a given patient had been dwelt upon by many writers, among them Hart, Cohen and Oppenheimer. Lewis had reported a case of temporary obstruction of the right bundle; Mathewson of the left. The latter had also reported transient obstruction occurring alternately in the right and left branches. Wilson in one patient was able to produce a curve of branch bundle block by vagal stimulation. Three theories had been advanced to explain this intraventricular variation in conduction. One was a shifting of the center of impulse formation, the second was that the impulse pursued a different course in its distribution and the third was a variation in the rate of conduction.

Dr. T. STUART HART said that in this most interesting presentation Dr. Talley had shown some very extraordinary and unusual electrocardiograms. Perhaps the most unusual one was the occurrence of auricular flutter with complete spontaneous heart block. Of course, it was quite common to see block with auricular flutter when digitalis was being used, but otherwise it was exceedingly unusual. Dr. Talley's presentation of alternating right bundle branch block and left bundle branch block was also a very unusual phenomenon. Dr. Hart recalled that he had had the opportunity of reporting such a case some years ago. It was published in *Heart*. In this case there was a ventricular paroxysmal tachycardia; at that time the phenomena were called extrasystoles arising alternately from the right and left sides of the heart; now we could interpret it as an alternating bundle branch block. One could not study the curves as closely as one could wish during a presentation of this kind, but there were one or two clinical features that were of interest. A study such as this of Dr. Talley's was the kind that we needed if we were going to make advances, not merely the presentation of a case that showed one particular feature but one that had been followed through years and showed the course of events. The study of cardiac disease was comparable to that of cerebral localization; we were beginning to localize processes in different parts of the heart. In cerebral localization the neurologist could say here is a small tumor and he could say it had extended thus and so far as the arms, the legs, the facial muscles were affected. Here was a series of definite processes in the heart which were being localized just as the neurologists were localizing the growth of a tumor in the brain. This had been a great help to the neurologist because it had made surgical intervention possible under certain conditions. Then it was also a help because if the growth arose from a particular structure he knew that it was probably of a particular nature. In the same way this localization of cardiac functions shows that with certain effects certain cardiac tissues are involved and therefore certain medication indicated, while with different effects such medication would be contraindicated. As to the etiology in this case of Dr. Talley's one would say from the nature of the disturbance of heart function that most probably the etiological factor was lues, whether the Wassermann was positive or not. One other point of interest was that with all these wonderful curves she had little cardiac insufficiency. It would seem that the reason was that there was considerable blocking of the main bundle which was in itself a protection feature, since it kept the heart slow and was therefore a great help to the efficiency of the heart.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

BOARD OF MEDICAL EXAMINERS OF THE STATE OF NORTH CAROLINA.

Raleigh, June 20, 1921.

(*Continued from page* 480.)

PRACTICE OF MEDICINE.

1. Differentiate typhoid fever from aestivo autumnal fever, first week.
2. Name types of malarial fever. (*a*) Cause of each. (*b*) Give briefly treatment of each. (*c*) Why is it so important each case should be treated until cured?
3. Give synonyms and early symptoms of tabes dorsalis, etiology, and treatment.
4. (1) Give symptoms of pernicious anemia. (*a*) Blood picture. (*b*) Prognosis. (*c*) Treatment. (2) What is found in blood of leukemia that is characteristic that is not found in normal blood?
5. Give exciting cause, diagnosis and treatment of cerebrospinal meningitis.
6. Define the following signs and name condition in which each is found: Kernig's sign, Romberg's sign, Dalrymple's sign, Skoda's sign, Von Graefe's sign.
7. Give differential diagnosis between membranous croup and spasmodic croup, and give treatment of each.
8. What is Bell's palsy? Where is lesion found, symptoms and treatment.
9. Discuss briefly gastric ulcer and give treatment.
10. Name some indications and contraindications of gastric lavage.

OBSTETRICS, GYNECOLOGY, AND PEDIATRICS.

1. Define: (*a*) *Obstetrics.* (*b*) *Gynecology.* (*c*) *Pediatrics.*
2. What are the diameters of the normal female pelvis at the superior strait expressed in centimeters? What are the causes for variations from the normal measurements? What is the effect of these variations from the normal upon the act of normal labor?
3. Tell in their usual sequence the symptoms and signs of normal pregnancy, both subjective and objective.
4. How would you treat a central placenta prævia associated with a transverse position of the unborn child and associated with severe hemorrhage?
5. Describe: (*a*) Precocious menstruation. (*b*) Delayed menstruation. (*c*) Menorrhagia. (*d*) Metrorrhagia. (*e*) Amenorrhea. (*f*) Vicarious menstruation. (*g*) Dysmenorrhea. (*h*) Climacteric.
6. Describe in detail the secondary repair of a median perineal laceration involving the sphincter ani muscles.
7. Give the etiology, symptoms, diagnosis and treatment of carcinoma of the uterus.
8. Give the differential diagnosis between cholera infantum, acute ileocolitis and chronic ileocolitis.
9. Outline a plan for the successful treatment of a case of enuresis in a child five years of age.
10. Name the incubation period of: (*a*) Diphtheria. (*b*) Scarlet fever. (*c*) Pertussis. (*d*) Measles. (*e*) Varicella. (*f*) Epidemic parotitis.

NOTE.—Each question will be counted as eight points on the total. The practical examination will have a value of twenty points.

ANSWERS.

PRACTICE OF MEDICINE.

1. *Typhoid fever* (*first week*). The bacilli can be isolated from the blood. This is absolutely conclusive, but may be difficult.

Aestivo-autumnal malaria. Blood examination will show the presence of the plasmodium.

2. TYPES OF MALARIA.—(1) *Benign tertian,* caused by the Plasmodium vivax; (2) *Quartan,* caused by the Plasmodium malariæ; (3) *Malignant tertian,* or *Aestivo-autumnal,* caused by the Plasmodium falciparum.

Each case of malaria should be treated until cured, because unless this is done relapses will occur, and the patient will eventually become a gamete carrier, and thus be a "carrier" and transmitter of infection.

3. TABES DORSALIS. *Synonyms.*—Locomotor ataxia, Posterior spinal sclerosis. *Early symptoms.*—Lightning pains; loss of knee-jerks and deep reflexes; Argyll-Robertson pupil; Romberg's sign; difficulty in urination; optic atrophy; paresthesia.

Etiology.—Syphilis; and the disease is more common in the male sex and in adult life.

Treatment.—"The recent demonstration of the syphilitic nature of locomotor ataxy tends to strengthen the position of those who advocate specific therapy in its treatment. But even the most modern methods of administering salvarsan (intrathecal injection of salvarsanized serum) appear at best to have only a temporary effect, and to show little advantage over efficient mercurial inunction. The best cases for specific therapy are those in which the ataxia has rapidly followed the initial lesion (two years or so), and where the case is seen early. Other methods of treatment are largely symptomatic. The general health must be maintained by tonics, especially iron; diet should be nutritious; and rest, or exercise stopping short of fatigue, must be ordered according to circumstances. Lightning pains may be treated with antipyrin, phenacetin, or aspirin; chloride of aluminum, three to four grains thrice daily may be given where these fail, and morphia is often necessary. Similar treatment must be used in the various crises, and in the gastric form gastric sedatives may also have some effect. Where they make life intolerable, division of the appropriate posterior nerve-roots has been practised with some success. For the ataxy the best treatment is a systematic re-education of the muscles under the control of sight, on the system introduced by Fränkel, beginning with the simplest exercises and movements, and passing gradually to the more complex. Massage is also of considerable use."—(Wheeler and Jack's *Handbook of Medicine.*)

4. PERNICIOUS ANEMIA. *Symptoms.*—*Pernicious anemia* begins insidiously, with languor, muscular weakness, and pallor; palpitation of the heart, dyspnea, attacks of syncope, and edema may follow. The pulse is large and soft, hemic murmurs are often present; later on a remittent fever may develop, together with nausea, vomiting, diarrhea, anorexia, and disorders of vision. The weakness progresses.

Blood Picture.—The blood shows a low specific gravity, the hemoglobin is rarely more than 50 per cent. and may be much lower; the color index is increased; the red corpuscles are greatly reduced, the average number being a little over 1,000,000; poikilocytosis is pronounced; nucleated reds are generally present; and the leucocytes are decreased both absolutely and also with regard to the polynuclears.

Prognosis.—Unfavorable.

Treatment.—"Fresh air, rest, and a diet as liberal as the digestive powers of the patient will permit are requisite. Warm salt baths and massage are valuable adjuvants to internal treatment. The teeth should receive careful attention. If there be gingivitis or pyorrhea alveolaris, antiseptic mouth washes should be used at frequent intervals. Arsenic is the most valuable drug. It may be given in the form of Fowler's solution, the dose being gradually increased from 2 or 3 to 15 or 20 minims three times a day. Iron is rarely of service. Bone-marrow is sometimes efficacious. Inhalations of oxygen have been recommended. Appropriate anthelmintic remedies should be given, of course, in the cases in which intestinal parasites are present. Digestive disturbances are often benefited by the administration of diluted hydrochloric acid and a bitter."

In *leukemia* myelocytes may be found.

5. EPIDEMIC CEREBROSPINAL MENINGITIS. *Etiology.*—The *Diplococcus intracellularis meningitis.* Sporadic cases may be due to the pneumococcus, streptococcus, colon bacillus, typhoid bacillus, bacillus of influenza, or gonococcus; but the epidemic form is always caused by the *Diplococcus intracellularis.* It enters the system through the mucous membrane of nose, mouth, or pharynx, and reaches the meninges by way of the lymphatics or the circulation. The disease may be conveyed by "carriers." *Diagnosis* is made from (1) the symptoms, (2) Kernig's sign, and (3) lumbar puncture. *Symptoms*—The onset is generally sudden, with headache, rigors, stiff neck, opisthotonos, vomiting, mod-

erately high (102° F.) and irregular fever, full and rapid pulse, herpes, photophobia; convulsions, delirium, monoplegia or hemiplegia, enlarged spleen, retracted abdomen, and disturbed reflexes may be present. *Kernig's sign* is obtained (if the thigh is flexed at right angles to the abdomen, the leg cannot be fully extended on the thigh, as it can in health, owing to the contraction of the flexor muscles). By *lumbar puncture*, some of the cerebrospinal fluid may be withdrawn and examined for the presence of the diplococcus.

Treatment includes the use of Flexner's serum (injected into the subarachnoid space after about 40 c.c. of the spinal fluid has been withdrawn). The patient is to be kept in a dark room, with his head elevated (but not flexed) and an ice bag applied to head and spine. Nutrient enemata may be required; both bowels and bladder need to be watched. Nervous symptoms may demand an opiate or chloral; urotropin is said to be of service.

6. *Kernig's sign.* The patient lying on his back, with his thigh flexed upon the abdomen, the leg cannot be completely extended. It occurs in meningitis.

Romberg's sign. The patient standing with his eyes closed and his feet close together, his body sways. It occurs in tabes dorsalis.

Dalrymple's sign. The palpebral slit is abnormally wide. It occurs in exophthalmic goiter.

Skoda's sign. On percussing the chest a tympanitic sound is heard above a consolidation in lobar pneumonia or above a pleural effusion.

von Graefe's sign. The eyeball does not move downward with the upper eyelid when the patient looks down. It occurs in exophthalmic goiter.

7. *Spasmodic croup* generally comes on suddenly, at night. There is no appreciable fever, no previous malaise or sickness, and often the patient is asleep again by the time the physician arrives. There is frequently a thick, tenacious mucus, but neither Klebs-Loeffler bacilli nor streptococci are present. It is entirely a local disturbance.

Membranous croup is either laryngeal diphtheria or a streptococcus infection. In either case there is a prior stage of malaise, accompanied by chills, fever, and sore throat. The fever may become very high. A membrane forms, in which are found the Klebs-Loeffler bacilli or streptococci.

Treatment of diphtheria. The patient should be in bed and isolated; the family should be quarantined; infected articles should be soaked in some antiseptic solution and then boiled; a milk diet is indicated; the nose and throat should be kept clean by the use of some mild antiseptic solution; calomel in divided doses should be given to keep the bowels open; tincture of the chloride of iron is indicated; and early administration of diphtheria antitoxin in adequate doses (3,000 to 10,000 units) must be given at once; if there is no improvement within twelve hours, the dose must be repeated.

Treatment of spasmodic croup. The patient should be put in a bath of hot water, or hot cloths should be applied to the neck; an emetic dose of ipecac should be given; a saline should be administered; and bromides in small doses should be given at bedtime for a few nights.

8. *Bell's palsy* is paralysis of the facial nerve after its exit from the stylomastoid foramen. The lesion is found either in the stylomastoid foramen or in the peripheral fibers of the nerve.

Symptoms.—"When the nerve is affected after it leaves the stylomastoid foramen (Bell's paralysis), the affected side is immobile, smooth, and expressionless. The eye cannot be shut, and usually waters freely. The attempt to smile or to whistle brings out the contrast between the two sides. Articulation of labial consonants is defective. The food collects between the cheek and teeth, owing to buccinator paralysis. The skin of the neck cannot be voluntarily moved (paralysis of the platysma).

Treatment.—"Remove if possible any pressure on the nerve by causing absorption of inflammatory products. Where the cause is syphilis, use specific remedies. Treat any ear disease, surgically if need be. In rheumatic cases apply a blister over the point of exit of the nerve and give diaphoretics and a smart purge. Maintain the tone of the paralyzed muscles by massage and by a moderately strong faradic or continuous current applied for about a quarter of an hour several times daily, the positive pole being on the nape of the neck. Iodide of potassium may be given internally. The peripheral type is usually very amenable to treatment. In obstinate cases an anastomosis may be made between the spinal accessory or hypoglossal nerve and the distal portion of the facial; but the operation is a severe one, and the improvement produced is often only partial."—(Wheeler and Jack's *Handbook of Medicine.*)

9. GASTRIC ULCER. *Etiology.*—Injury, bacteria, hyperacidity of gastric juice, changes in the blood or blood-vessels of the stomach; it generally occurs in young people (20 to 30) and is apt to be associated with chlorosis. *Symptomatology.*—Pain, localized in stomach, coming on soon after a meal, and of a sharp or cutting nature, and often relieved by vomiting; hematemesis; tenderness over the stomach: the condition is generally improved by starvation or by a milk diet; analysis of gastric contents shows an excess of free hydrochloric acid; there may be "occult" bleeding, which can be recognized by the benzidin test. Prognosis is guardedly favorable; hemorrhage and perforation are apt to be fatal complications; relapses are common; the mortality is about 10 per cent.

It is to be *differentiated from* cancer of the stomach, duodenal ulcer, gastralgia, gastritis, pylorospasm, hypersecretion, cholecystitis, cholelithiasis, and renal calculus.

Operation is indicated when the hemorrhage is copious and recurrent, when medicinal treatment has been given a fair trial and no cure has been made, when after apparent cure a relapse has occurred, when perforation occurs, when adhesions about the stomach interfere with the proper performance of its functions.

The treatment consists largely in rest in bed, liquid diet and sometimes rectal alimentation only. The rectum should first be irrigated with lukewarm water, and the following nutritive enema may be given: Milk, ℥8; yolks of 2 eggs; sodium chloride, ʒ1; claret wine, ʒ1; and a tablespoonful of aleuronat flour. Hematemesis will require absolute rest and abstinence from food and drink. Thirst may be relieved by sponging the lips and tongue with ice water. Ice-bags may be applied over the affected area, and ergotol (♏20) with morphine (gr. ¼) may be given hypodermically. Later light diet and silver nitrate may be administered.

10. GASTRIC LAVAGE. *Indications.*—"Aside from diagnostic purposes lavage must be performed—(1) when there is stagnation of food in the stomach; (2) whenever large quantities of mucus are present in the organ; (3) after poisoning by the ingestion of alkaloids (morphine, atropine, cocaine, etc.) into the stomach; (4) in postoperative ileus.

Contraindications.—"These comprise all conditions in which introduction of the tube is not permissible, as for instance, hemorrhages, ulcer of the stomach, aneurysm, poisoning by strong acids or caustics: great general debility." (*Reference Handbook of the Medical Sciences.*)

OBSTETRICS, GYNECOLOGY, AND PEDIATRICS.

1. *Obstetrics* is that branch of medical science which treats of the physiological and pathological processes which arise, either directly or indirectly, from impregnation; and it is concerned with the necessary care and treatment of the woman and child.

Gynecology is that branch of medical science which treats of the diseases peculiar to women.

Pediatrics is that branch of medical science which treats of the diseases of children.

2. *The diameters of the normal female pelvis, at the superior strait*, are:— (1) *antero-posterior*, 11 centimeters; (2) *transverse*, 13½ centimeters; and (3) *oblique*, 12¾ centimeters.

Variations in the above may be due to age, lack of development, disease. The *effect of these variations* may be to hinder, or entirely prevent the normal termination of the pregnancy; as a result various procedures may be necessary, such as the use of forceps, version, cesarean section or some other operation, mutilation or death of the fetus, the termination of pregnancy before the usual period; further, the prognosis is worse for both the mother and the fetus.

3. *Subjective signs of pregnancy*, in the order of their appearance, are: Cessation of menstruation, morning sickness, increased frequency of urination, active fetal movements. *Objective signs of pregnancy*, in the order of their appearance, are: Softening of the cervix, changes in the mammary glands, discoloration of the vulva and vagina, pulsation in the vaginal vault, Hegar's sign, active fetal movements, ballottement, palpation of the fetus, intermittent uterine contractions, hearing the fetal heartbeat, rate of growh of the uterine tumor.

4. The patient should be anesthetized, the physician's hand should be made to pass right through the placenta praevia, a podalic version should be performed, and one leg of the fetus brought down; this will act as a plug, and stop the hemorrhage; the anesthetic may then be discontinued and the patient be allowed to deliver herself as in an ordinary breech presentation; or the traction may be continued and the fetus delivered rapidly.

5. *Precocious menstruation* is menstruation at a much earlier period than is usual.

Delayed menstruation is the appearance of menstruation at a later period than is usual.

Menorrhagia is excessive menstruation.

Metrorrhagia is uterine hemorrhage between the usual menstrual periods.

Amenorrhea is the absence of menstruation.

Vicarious menstruation is the periodic loss of blood from other channels instead of the usual flow from the uterus at the menstrual periods.

Dysmenorrhea is unusually painful menstruation.

Climacteric is the period of life when a woman ceases to menstruate.

6. "In 'complete' lacerations—those of the *third* degree—through the sphincter ani to the rectum, the rectal tear is first stitched with *catgut* sutures (a short, curved needle being used) and going through the rectal wall only. The sutures are tied on the inside, so that the knots are on the mucous membrane of the bowel. They begin from above and come down to the sphincter ani, the cut ends of which are drawn out with a tenaculum while the sutures penetrate them. These *catgut* sutures need not be removed; they will digest in the tissues and disappear of themselves. The posterior wall of the vagina is next sutured with fine silk, from above downward toward the hymen. Finally, skin sutures through the perineum itself, including muscles of the pelvic floor, are passed. The sutures (preferably of aseptic silk) are passed with a moderately curved needle about two inches long, as follows: Beginning at the posterior end of the laceration (that nearer the anus), the needle enters the skin near the edge of the wound and follows a circular course until its point appears at the very bottom of the laceration (a finger of the other hand in the rectum guarding against its penetrating that canal); it then enters the opposite side of the laceration at the bottom of the wound and comes out of the skin opposite its point of entrance, having followed a similar circular course to that pursued on the other side where it first went in. The ends are *loosely* tied or secured by catch-forceps, until the requisite number of sutures are passed in a similar manner (half an inch apart), when the wound is again cleansed, the vaginal plug removed, and the sutures tied tightly enough to coapt the parts without injurious constriction, the order of succession in tying being that in which the sutures were passed.

The silk sutures may be removed in about a week. Antiseptic dressings are applied as after an ordinary labor, extra care being taken to keep the wound aseptically clean by daily irrigation with the creolin solution." (King's *Manual of Obstetrics.*)

7. *Etiology of cancer of the uterus:* "The causes of cancer are unknown; the predisposing or favoring conditions are as follows: (1) *Age*—the disease occurs most frequently between forty and fifty. The extreme limitations are between eight and seventy-six. (2) *Heredity*—an apparent predisposing cause. (3) *Social state*—more frequent among the poor and ignorant. (4) *Race*—relatively rare among negroes. (5) *Trauma of labor*—laceration of the cervix a possible predisposing cause. (6) *Endometritis and endocervicitis* are said to be favoring conditions."—(Dudley's *Gynecology.*)

The presence of *early* uterine cancer may be deduced from the presence of an irregular uterine hemorrhage, an offensive discharge from the vagina, and sometimes pain in the pelvis. A microscopic examination may aid in the diagnosis.

Later, the tumor is noticeable, and the patient shows the characteristic cachexia; the uterus may be curetted, and the scrapings examined microscopically. Metastatic growths may be noticed in the pelvis. The growth (if on the cervix) is friable.

Treatment, to be of any value, depends on an early diagnosis. If the cancer is diagnosed quite early, before cachexia and metastasis are present, and before any other structures are involved, complete hysterectomy may prolong the patient's life.

8. *Cholera Infantum.* "The disease sets in with vomiting, which is incessant and is excited by an attempt to take food or drink. The stools are profuse and frequent; at first fecal in character, brown or yellow in color, and finally thin, serous, and watery. The stools first passed are very offensive; subsequently they are odorless. The thin, serous stools are alkaline. There is fever, but the axillary temperature may register three or more degrees below that of the rectum. From the outset there is marked prostration; the eyes are sunken, the features pinched, the fontanelles depressed, and the skin has a peculiar ashy pallor. At first restless and excited, the child subsequently becomes heavy, dull, and listless. The tongue is coated at the onset, but subsequently becomes red and dry. As in all choleraic conditions, the thirst is insatiable; the pulse is rapid and feeble, and toward the end becomes irregular and imperceptible. Death may occur within twenty-four hours, with symptoms of collapse and great elevation of the internal temperature. Before the end the diarrhea and vomiting may cease."

Acute enterocolitis.—"There is evidence of an inflammatory alteration of the intestinal wall, usually of the lower ileum and large intestine. The mucous discharges continue, mingled with food residue and often streaked with blood. Pus cells are numerous under the microscope. The temperature remains elevated or may be remittent. After two or three weeks the symptoms gradually subside, the stools become fewer in number, and the fecal character returns. In other instances the severe involvement of the intestines seems evident within a few hours of the onset, with abdominal pain, vomiting, and fever. Blood and pus may be present in nearly every stool. Tenesmus is frequent and prolapsus ani is not uncommon. In severe attacks the prostration is marked, the tongue is dry, the mouth covered with sordes, and death may ensue in a few days from profound sepsis, or if the acute stage is survived, the case may continue desperately ill for weeks, gradually recover, or die from asthenia.

Chronic ileocolitis.—The signs of active inflammation subside; there is little pain or fever, but more or less mucus remains in the stools. The general condition of the child suffers. There is a continuous loss in weight; the skin is dry and hangs in folds; nervous symptoms are always present. There may be stiffness and contraction of the extremities, with opisthotonus. The progress of the disease is irregular, marked by short periods of improvement. Death is often due to a relapse, to asthenia, or to bronchopneumonia."—(Osler's *Practice of Medicine.*)

9. *Treatment of enuresis.*—"The physician must find, if possible, the principal reason for incontinence, by an examination of the urine, together with a general and local physical examination of the patient. More than one cause will often be found present. Highly acid, scanty urine may be relieved by a free administration of water together with an alkali, such as the acetate or bicarbonate of potash, five grains of either thrice daily. Where overirritability of the detrusor is the principal cause, belladonna in full physiological dose, by its action on unstriped muscular fiber, will usually diminish functional activity and thus correct the condition. For a child of five years, grain 1/400 atropine sulphate or the tincture of belladonna, ♏ v, may be given late in the day, and the dose increased until there is dryness of the throat and flushing of the skin. If the incontinence is not relieved when the drug is pushed to its full effect, it will not be necessary to

continue it very long. Where there is evidence of weakness of the sphincter, nux vomica or strychnine and ergot will act in strengthening its tonicity and stimulating the nerve centers. From 5 to 10 minims of fluid extract of ergot and 5 minims of the tincture of nux vomica may be given thrice daily, well diluted in water, to a child of five years. Unlike belladonna, these remedies may have to be continued for several weeks before the full benefit is obtained. Occasionally good results will be obtained by a few hypodermatic injections of ten drops of the fluid extract of ergot directly into the ischiorectal fossa. Suppositories, containing half a grain of ergotin, may also do good in this class of cases.

"The general hygienic treatment is always important. A simple, unstimulating diet, with a light early supper is desirable. Restriction in the amount of fluids, especially late in the day, may be tried. General tonic treatment, such as the use of large doses of the syrup of the iodide of iron will relieve certain cases. Cold bathing, and plenty of fresh air will act as adjuvants. Sometimes a change from one bed to another will bring at least temporary relief. The children should be taken up late at night and early in the morning, and placed upon a commode to prevent the bladder from getting too full. Punishing these children is unavailing and usually makes the matter worse by upsetting the nervous system."—(Chapin and Pisek's *Diseases of Children.*)

10. *The incubation period* of *diphtheria* is about 2 to 5 days; of *scarlet fever*, is about 3 to 7 days; of *pertussis*, is about 10 to 14 days; of *measles*, is about 10 to 18 days, usually 14; of *varicella*, is about 14 to 20 days; of *epidemic parotitis*, is about 10 to 20 days, usually 14.

(To be continued.)

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

INTESTINAL PROTOZOA OF MAN. By CLIFFORD DOBELL and F. W. O'CONNOR. 211 pages with illustrations. Price, $4.50. Published by William Wood & Company, New York.

DISEASES OF THE EYE. By GEORGE E. DE SCHWEINITZ. 832 pages with illustrations. Price, $10.00 net (cloth). Published by W. B. Saunders & Company, Philadelphia.

MENTALLY DEFICIENT CHILDREN. By SHUTTLEWORTH and POTTS. 320 pages with illustrations. Published by P. Blakiston's Son & Company.

AN ESSAY ON THE PHYSIOLOGY OF MIND. By FRANCIS X. DERCUM. 150 pages. Published by W. B. Saunders & Company, Philadelphia, Pa.

LA GOUTTE ET SA CURE HYDRO-MINERALE. By MAURICE LOEPER. 144 pages. Price, 7 francs. Published by L'Expansion Scientifique Française.

THE TREATMENT OF ORDINARY DISEASES. By BEVERLEY ROBINSON. 132 pages. Published by American Medical Publishing Company, New York.

THE PATHOLOGICAL GALL-BLADDER. By ARIAL W. GEORGE and RALPH D. LEONARD. With illustrations. Price, $10.00 net. Published by Paul B. Hoeber, New York.

LEHRBUCH DER GRENZGEBIETE DER MEDIZIN UND ZAHNHEILKUNDE. Vol. 2. By JULIUS MISCH. 672 pages with illustrations. Published by F. C. W. Vogel, Leipzig.

CLINICAL TUBERCULOSIS. By FRANCIS M. POTTENGER. Vol. 1, 707 pages with illustrations. Vol. 2, 725 pages with illustrations. Price, $15.00. Published by C. V. Mosby Company, St. Louis.

THE VITAMINS. By H. C. SHERMAN and S. L. SMITH. 273 pages with illustrations. Published by The Chemical Catalog Company, New York.

VACCINS ET SERUMS. By Dr. APERT. 282 pages. Published by Ernest Flammarion, Paris.

Miscellany.

An Italian Appreciation of Virchow.—The *Riforma Medica* for January 2, 1922, xxxviii, 1, contains an account of Virchow in connection with the one hundredth anniversary of his birth. The editor feels certain that this mark of honor has the approbation of all Italian medical men and the article itself is written by a well known Italian, Dr. Aievoli. This action by the editor is hardly open to the accusation of Teutonic propaganda, nor is there any mention of the fact that the deceased antagonized with might the Prussianism of his day. The political and other extramedical activities are not mentioned, and the scientist is presented only in his role of pathological anatomist including the authorship of his epoch-making works and editorship of his *Archive* and *Jahresberichte*. He was the teacher of the distinguished Italian pathologist von Schroen, and may in turn be visualized as the successor to the mantle of Morgagni. The author quotes to some extent from the address of Professor Orth last October in Berlin, in which it was stated that Virchow had in his life attended 500 medical meetings while the number of his personal contributions was 122. Virchow was first and last a morphologist, so that the many dynamic and humoral activities of the present day represent very decided departures from the foundations laid by him.

Napoleon's Alleged Attempt at Suicide at Fontainebleau.—In a recent secular article in a prominent French periodical there is an attempt to revive an old legend that Napoleon once sought death by poisoning. This report seems to have originated among the servants of the great man, but it is known that one of these (Ali), who was quoted to that effect, was not with him at Fontainebleau. This narrows down the testimony to one Hubert, who was the emperor's valet at the latter place. The narrative was in part as follows: The emperor had sat up until 4 A. M. writing letters to the empress, but for some reason changed his mind and threw them in the fire. Believing himself quite unobserved, he went to a commode on which were kept glasses, a teaspoon, sugar bowl, and a carafe of water. The sugar bowl chanced to be empty. The emperor was seen or heard to pour water in one of the glasses and stir with the spoon. This could be explained by the fact that the order was to keep some syrup in the glasses, so that the emperor naturally thought that he was sweetening his drink. After having stirred for a time, he called Hubert to summon several notables who were presumably in the building. His face and bearing were calm. When the dignitaries had arrived he told them that he had swallowed poison in a moment of weakness as a result of his military reverses, and then had Hubert fetch the surgeon Yvan, and the latter at once administered an emetic which acted with some difficulty. After about six hours the emperor claimed to feel himself again. This account of Hubert differs in some respects from that of Baron Yvan, son of the surgeon. Apparently it is impossible to determine whether this was a bona fide case of attempted suicide or one of the emperor's dramatic coups. According to the Baron, his father was very sceptical.—*Le Progrès Médical.*

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Original Articles.

CANCER AND ENDOCRINE DISEASE.

BY SEELYE W. LITTLE, M.D.,

ROCHESTER, N. Y.

THE average physician is apt to skip tables in medical articles. I regret to say that this article contains one table and that the table is an essential part of the article. Incorrigible table-skippers should, therefore, skip the article along with its one table.

The table confirms and emphasizes several important facts not generally appreciated by the medical profession; it nullifies some statements which have become hereditary in succeeding generations of text-books; and it demonstrates some facts which, so far as I know, are here presented for the first time. There may well be slight inaccuracies in the figures presented owing to the innumerable transfers and additions required in the compilation of the table. In essentials, however, the table may be relied upon as accurate.

It would have been easy to present many other tables to substantiate various statements in the text, but I refrain. It will be a pleasure to send references, figures, tables, etc., to anyone who may be interested.

The figures for 1919 are not included because they were not available until after the table had been made up, and because the 1919 figures are merely repetitions of the others, showing precisely the same characteristics. The 1919 figures are larger, of course, but the ratios hold steady as shown.

The relative frequency of incidence, as modified by sex, of the three endocrine diseases discussed and of cancer; the parallels and the ratios shown to exist between cancer and the three ductless gland disorders; and the persistent steadiness of it all year after year—these things cannot be coincidence only. Also it seems not to have commented upon, in searching for a cancer "lead," that in general women have endocrine disorder oftener than do men; probably because the fact is not generally appreciated. Nor would it be of any special significance except for what is here brought out concerning the curious relationships between cancer and the only endocrine diseases listed in the U. S. Reports.

Deaths from Cancer and from Diabetes in Registration Area of United States for Age Period 40-59 *and Age Period* 60-79

	1915			
	Cancer		Diabetes	
Age	40-59	60-79	40-59	60-79
Males	7,960	11,286	1,671	2,265
Females	13,601	13,383	2,010	3,033
	21,561	24,669	3,681	5,298
Ratio (approximate)	7 to 8		7 to 10	

	1916			
	Cancer		Diabetes	
Age	40-59	60-79	40-59	60-79
Males	8,452	12,130	1,811	2,385
Females	14,544	14,452	2,168	3,204
	22,996	26,582	3,979	5,589
Ratio (approximate)	7 to 8		7 to	9.8

	1917			
	Cancer		Diabetes	
Age	40-59	60-79	40-59	60-79
Males	8,742	13,035	1,872	2,519
Females	15,262	15,051	2,095	3,287
	24,004	28,086	3,967	5,806
Ratio (approximate)	7 to 8		7 to	10.2

	1918			
(Year of influenza pandemic. This table is exclusive of deaths among military and naval forces.)				
Age	40-59	60-79	40-59	60-79
Males	9,258	13,514	1,879	2,389
Females	16,029	16,379	2,103	3,143
	25,287	29,893	3,982	5,532
Ratio (approximate)	7 to 8.5		7 to	9.7

1919 Ratio—Cancer, 7 to 8.6; diabetes, 7 to 10.1.

The first point to be emphasized is that there are actually more cancer deaths during the age-period 60-79 than during the age-period 40-59. Yet in the 40-59 period there are about three times as many people as in the 60-79 period. Diabetes has the same characteristic, and both diseases have it year after year. The ratio of deaths in one period to deaths in the next period is marvelously steady year after year for each of the diseases respectively; for cancer the greatest variation is from a ratio of 7 to 8, to a ratio of 7 to 8.5, and the greatest for diabetes is from 7 to 10.2, to 7 to 9.7; giving for each disease the same maximum variation—0.5. This means, among other things, that each disease consistently maintains the even tenor of its own particular gradually rising death rate from one twenty-year age period to the next, does this year after year; that not even a great pandemic with a high death rate could seriously affect the ratio of deaths in the two periods in the case of either disease, though it did bring the total number of deaths from each disease below the total which one might confidently look for under average conditions. Beyond a doubt many deaths from cancer and from diabetes were forestalled by death from influenza or pneumonia in the year 1918. Many other diseases had a slightly lowered death rate in that year.

In spite of text-books and popular medical opinion, diabetes, like cancer, is commoner among women than among men—persistently, regularly, year after year; and, like cancer, the ratio of diabetes deaths among men to diabetes deaths among women remains fairly constant year after year. That diabetes is commoner among women than among men is a fact which the writer was anxious to verify long before he had any large-scale mortality statistics to work with; because from his study of cancer in connection with ductless glands he was logically con-

vinced that it must be so. Premises and logic being perfect, the conclusion must be correct. At any rate, it was agreeable to find a reasoned conclusion thus verified.

Besides cancer and diabetes there are other diseases which are preeminently old-age diseases. Death rates for old-age populations are, of course, enormously high, but there are only a few diseases the death rates from which are always remarkably high in old age as compared with their death rates at other age-periods, and at the same time diseases which furnish yearly a large total number of deaths among the aged in comparison with their total number of deaths at other age periods; and diseases which also year after year regularly account for a large number of deaths among the aged not only in the relative sense but in the literal sense. Such diseases as influenza and pneumonia we may dismiss as irrelevant. Their old-age death rates are very high, but not steady from year to year as are the rates for cancer and diabetes. There is, however, one general class of diseases which notoriously are old-age diseases, which have enormously high old-age death rates, gradually increasing rates, and rates steadily maintained year after year. A very large proportion of old people regularly die from these diseases. They are: Apoplexy, chronic organic heart diseases, chronic "rheumatism," "asthma," chronic bronchitis, and chronic nephritis. These are all diseases of one general type commonly known as the degenerative diseases of old age. These too are irrelevant to this discussion. One reason among many is that they are not at all partial to women—the contrary rather. Obviously neither the infections nor these other diseases have any relation either to cancer or to diabetes save that all have unusually high death rates among old people. Our table shows plainly now that cancer and diabetes are in a class by themselves and wonderfully alike as regards sex incidence, steadiness of high death rate from age 40 onwards, persistent gradual increase in death rate, each maintaining the same relative rate of increase, and in other particulars.

But there is much more than this. Up to about age 20 both diseases are comparatively rare; both occur as often in one sex as in the other, and each tends to run a rapid course; what fluctuations in sex incidence and in death rates there are from year to year at this age period are practically alike in the two diseases. From age 20 onwards each is predominantly a disease of women, without a break, to extreme old age. From each disease the greatest absolute number of deaths in any one five-year period is, among men, the age period 65-9; among women, the age period 60-64. (1918.) This last parallel is not always so precise as in 1918, but it is always a very close parallel. There is no other known disease at all comparable with cancer and diabetes in all the above noteworthy parallels; there is none at all comparable in any two or three of the above parallels, save two diseases which are exactly parallel in every important respect except frequency. These two others are comparatively rare diseases but *they are both ductless gland diseases.* More of these two others later.

Here then are four diseases each of which has precisely the same unusual and characteristic combination of features steadily maintained from infancy to extreme old age, a combination so peculiarly their own as to place them together in a class by themselves, and so foreign to other diseases as to exclude every other known disease from that particular class. Three of the four are known to be ductless gland diseases; *the fourth is cancer.* There are of course other ductless gland diseases besides these three; but none is qualified to enter the particular class mentioned. (For example, acromegaly is a ductless gland disease, but for obvious reasons it is never a disease of early life.) One of the four besides cancer invariably presents in its later stages pathological new-cell growth of embryonic character, as will be shown presently. Each one of the four is unmistakably a separate disease entity while all four unmistakably belong to the same general class; just as scarlet fever and chicken pox are separate disease entities belonging to the same general class.

If cancer is a disease in the same class with three well-known ductless gland diseases, why is it that cancer does not regularly present symptoms plainly referable to dysendocrinism? *It does*—invariably; and it presents far more such symptoms than does diabetes, for example. What endocrine symptoms, may I ask, does diabetes present? Sugar in the urine means neither diabetes nor endocrine disorder necessarily; nor does absence of sugar from the urine necessarily mean neither diabetes nor dysendocrinism. The one invariable characteristic of true diabetes is faulty carbohydrate metabolism of endocrine origin, a fact not even yet realized by the average practitioner to whom diabetes is still for all practical purposes "sugar in the urine" because that is the one common outstanding spectacular symptom of the disease, which he insists upon seeing (in a test tube) before saying "diabetes." Diabetes begins before sugar appears in the urine.

Likewise, and to a greater degree, for most medical men *a* cancer is cancer simply because it is the one essential outstanding spectacular manifestation which he always has insisted upon demonstrating (and still does) before he will say "cancer"; for most medical men *a* cancer is the disease cancer —"at first"! And why not from the beginning to end? "Well, towards the end, you see, there are constitutional symptoms—anemia, waste of body tissues, cachexia, and all that." What about such clinical phenomena as the following? Highly specialized body cells which have reverted to embryonic type; which defy the whole organism by reproducing their kind indefinitely and in every instance; which, from the beginning to the certain end, thrive and flourish the better as all other body cells become weaker and less capable of performing their proper work; which thus appear and thrive with steadily increasing frequency year after year without a break from maturity to extreme old age, the increase being slight from year to year during early adult life but greater and greater year after year from mid-life onwards; corresponding precisely to the biological truth that a normal cell begins to die when it stops growth or development, or both, slowly at first but with increasing rapidity as time passes; thus, when an individual is physiologically completely matured, he at once begins to die in like manner. But if in such an individual there happens

to be even a single body cell of embryonic type, such as those under consideration, there is no physiological reason why it should die along with the dying mature body cells; on the contrary there is every reason why it should thrive, and it does;—What about such clinical phenomena as those just mentioned? Are those embryonic-like cells when few in number not only a cancer but "a purely local disease," while the same cells or their progeny when numerous are still a cancer (or cancers) but are not by any means the sum-total of the same disease? And what caused those abnormal cells to appear in the first place? And why do they appear with increasing frequency as age advances, pari passu with the increasing rapidity with which physiological death of the normal body cells takes place? And if we "cure" cancer by cutting out a cancer while it is still a "purely local disease" what's to prevent the "purely local disease" appearing again from the same cause which accounted for the first attack? (This happens occasionally! How about it?) Is it claimed that a beginning cancer is not only a cancer, and the sum-total of the disease cancer, but also is or contains the cause of itself in its dual capacity as a pathological new growth of body cells and as a purely local (at first) disease? This must be claimed by anyone who claims that total removal of a beginning cancer cures cancer. No disease is cured unless its cause is removed or otherwise rendered harmless. Yet no one can claim that this is done, as regards cancer, by the removal of a beginning cancer unless he also claims that the unknown cause of cancer is known to be included within a cancer, "at first." Why does the bulk of medical authority persist in this "local disease at first" nonsense? Cancer from start to finish is demonstrably a constitutional disease though I do not propose to repeat here a demonstration which has been made repeatedly by myself and others.

Cancer begins before there can be a cancer; and the disease must necessarily be caused by something or other which must sooner or later in every case account for the appearance of a cancer, and must account for the inevitable death of every cancer patient who is untreated, for the death of most of those who are treated on the local-disease-at-first plan, and for all other known cancer facts including those shown in our table.

There are present in every individual certain essential-to-life organs which are also essential to normal cell growth and development, to normal functioning and normal metabolism of certain highly specialized cells, and therefore to general normal metabolism of the body as a whole. Like all other organs they fail as age advances. These organs belong to the class appropriately called by Noël Paton 'regulators of metabolism"; lacking such control, embryonic cells remain embryonic cells to the end of the chapter; lacking such control, a highly specialized cell which became highly specialized only because it formerly had such control, cannot remain highly specialized in function and, consequently, it must eventually lose its physical characteristics as a highly specialized cell or it must perish; a functionless cell does one of two things—it "reverts to type" or it undergoes the "atrophy of disuse." This suggests a good lead for those seeking the essential causative factors of cancer.

If dysendocrinism is at the basis of cancer it is obvious that long before a cancer could appear there should be some lesser symptoms than a cancer of the gradually increasing dysendocrinism long before the dysendocrinism had reached a point which made a cancer possible. It may well be asked, therefore, why there are no such premonitory symptoms if dysendocrinism has anything to do with causing cancer. The answer is simple: there *are* such symptoms. At this point experience tells me that a flood of questions comes: "Who says so?" "How do you know?" "What are they?" "Why hasn't someone else noticed and called attention to any such symptoms?" "Why don't such symptoms become more and more marked as the disease progresses?" etc. etc.

Categorically I will answer the above questions in order.

I say so. I've seen them whenever I look for them. See next paragraph. Many others have noticed and called attention to such symptoms. They do.

Very often before a cancer appears, always after it appears, a cancer patient shows unmistakable symptoms of dysendocrinism which become more and more pronounced as the disease advances. In this place I mention only two such symptoms and invite any physician to look for them and thereby convince himself that one or both of them often precede by months the appearance of a cancer. I select these two because they are easily detected and one does not have to be an expert endocrinologist in order to believe that they are produced by something or other going wrong in some ductless gland or other. (1) High blood-sugar ratio, with or without (generally without) glycosuria; (2) Abnormal pigmentation. High blood sugar ratio without glycosuria often means a beginning diabetes; perhaps oftener, after age 50, it means beginning cancer; try it and see.

Gradually appearing skin pigmentations, freckle-like, often appear as old age comes on; due, doubtless, to the normal physiological aging of certain ductless glands. At any rate it seems to be a perfectly normal old-age phenomenon. But abnormal or unusual or very marked pigmentation always suggests ductless glands to the clinician, especially when appearing rather suddenly and when it cannot be accounted for by external causes such as sunburn, *x*-ray, etc.

Not rarely one may observe in aging people a rather sudden marked increase in size of existing old-age pigmentation, or a suddenly appearing crop of new spots, or both. Such unusual sudden increase in old-age freckling frequently precedes by several months the appearance of a cancer which by no means is always a skin cancer—indeed, most frequently not a skin cancer. And often one may observe a rather sudden appearance of old-age freckling before it is normally due; this also is often a forerunner of a cancer. Likewise in persons of any age the sudden increase in intensity or extent of pigmentation in a long-existing abnormality of the skin—a mole for example—more often than not presages a cancer of the skin at that point. Here again any physician who will may convince himself.

In passing it may be of interest to learn that in

many cases I have caused such abnormal pigmentations to disappear through proper endocrine therapy; and I like to think that thereby I have "cured" cancer before there was a cancer. I have certainly, in like manner, caused may typical so-called precancerous lesions to disappear; and thereby certainly prevented the appearance of a cancer at such sites just as well as though I had caused them to disappear by cutting them out. I choose to believe, however, that by this method of removal I have done far more than can be accomplished by cutting out "precancerous" lesions. In my opinion I accomplished the removal by removing the cause, *i.e.* by supplying what the failing ductless glands could not supply; and in my opinion I "cured" cancer before there was any cancer. All this and all other statements as of fact I am prepared to prove to the satisfaction of anyone who can see and who will see.

A minor but suggestive fact which has a bearing on our thesis is this: Fat people are, generally speaking, more likely to have cancer than thin people; likewise they are more likely to have diabetes. At and after mid-life women are more likely to put on fat than men. Women are more liable to cancer than men, and more liable to have diabetes. Fat people, overworked metabolic machinery, and ductless gland failure fit nicely into the picture, and constitute in themselves an harmonious trio.

Besides diabetes there are but two other diseases which are listed in the U. S. Mortality reports and which are at the same time known to be ductless gland disorders: Addison's disease and exophthalmic goiter. I have not placed them in my table for several reasons; chiefly because neither is preeminently a disease of old age. A flaw appears in my argument here, apparently. I have rather more than hinted that ductless glands naturally and normally fail along with all other organs as age advances; that premature endocrine failure, or too rapid failure in the old-age period instead of the normal gradual failure, provided such failure occurs in an essential-to-life ductless gland, fills the bill in accounting for the fact that cancer, like diabetes, appears more and more frequently year after year from mid-life to extreme old age. Why, then, shouldn't Addison's disease increase in frequency as age advances? For the simple reason that Addison's disease is generally a result of *tuberculous* disease of the adrenals. Tuberculous disease lessens in frequency as age creeps on. Incidentally it might be mentioned that "cancer families" are generally "tuberculous families" to a greater degree than they are "cancer families." Again, the Adrenals are two ductless glands, but one of which (the cortex) is essential to life. Why do we not have an increasing number of deaths from non-tuberculous-caused cortex failure, then, from mid-life onwards as we should according to my argument? In other words, the cortex surely fails more and more as age advances, and where are the necessary corresponding old-age deaths caused by failure of this vital organ? Where are the old-age deaths from non-tuberculous-caused Addison's disease? There were less than 100 deaths from Addison's disease after age 59 in the whole Registration Area; that would not account even for the deaths naturally to be looked for as the result of the inevitable *normal* failure of the cortex along with other vital organs in old age. Lethal old-age of the cortex surely "gets there first" sometimes. (There were over 12,000 deaths in the Area in 1918 listed as deaths from old age.") Much less can the 306 deaths (for all ages) recorded in the Area in 1918 as deaths from Addison's disease account for all the deaths that must have been caused by *abnormal* failure of this vital organ, whether such failure was due to tuberculous disease or not. We know that the islands of Langerhans thus abnormally failed in 1918 many thousands of times because we know one thing at least that results therefrom, viz., diabetes. Suppose that glycosuria were excluded from the symptom complex of diabetes, would there have been 12,800 deaths in the Area listed as caused by diabetes, *i.e.* by a disordered ductless gland? Even with the spectacular, easily found, test-tube symptom we used to write "diabetes" on death certificates as we do now; but a few years ago the word was only a tag meaning "sugar going through"; diabetes was "sugar going through," a disease named from its one spectacular symptom. Now the word means "disordered carbohydrate metabolism caused by failure of the islands to function properly." In the old days there were no deaths recorded as being due to disordered islands of Langerhans. Diabetes was frankly only a convenient tag; now it is a silly misnomer for an endocrine disease. Right here it is important to realize that microscopically proven very extensively damaged islands by no means necessarily result in diabetes or in "sugar going through." I am prepared to demonstrate that a patient may die, said patient's islands being found at autopsy plainly disorganized to a degree incompatible with continued life, said patient never having had glycosuria during the last three years of life (the urine having been repeatedly tested), said patient's death certificate reading as "cause of death," "Cancer of Stomach," said cancer being duly found at autopsy. All of which proves that seriously disordered islands do not always mean diabetes.

Where are all the deaths from cortex failure? Addison's disease cannot possibly account for them. And we haven't even an Addison's disease to account for deaths that must be due to lethal failure, from mid-life on, of one or two other essential-to-life ductless glands. It is incredible that such deaths never occur. There were in 1918 in the Area some 65,000 deaths, etiology unknown. They were all tagged "cancer"—but let us get on.

Addison's disease, Graves' disease, diabetes, and cancer have the following characteristics in common: More deaths among females than among males (did you know that fact as regards Addison's disease?); number of deaths increased from year to year at a pretty steady rate for each disease respectively (except for the year 1918, the grippe year, when deaths from diabetes and from Addison's disease fell below the 1917 figures, owing doubtless to grippe often getting in ahead of diabetes and of Addison's disease in the epidemic of 1918; many diseases, cancer among them, showed a slight slump that year in like manner); much rarer among Negroes than among Whites, relatively to population (has pigmentation anything to do with it?); abnormal skin pigmentation quite fre-

quent; changes in blood composition, though not necessarily the same either in kind or in extent in any two of the four (but note next paragraph); invariably as each disease progresses there are progressive disturbances in nutrition and in metabolism as a whole, though not necessarily, again, disturbances of the same sort in any two of the four; death from any one of the four diseases is preceded by what is called "cachexia"—as a rule in cancer and in Addison's disease, frequently in diabetes, not rarely in Graves' disease.

Addison's disease commonly, perhaps always toward the end, exhibits the symptom of a *pathological new growth of cells of fetal type.* Cancer commonly, perhaps always toward the end, presents the symptom of a pathological new growth of cells of fetal type which is so like the Addisonian new growth that it is actually called "Addisonian"! I refer of course to nucleated red blood cells. These embryonic-like blood cells are not collected together but travel about each by itself in the blood stream; and they do not appear until the disease is pretty well along. So, obviously, in each disease, the new growth scattered about in the blood stream is a mere symptom and cannot possibly be a purely local disease—not even at first; obviously likewise a cancer is a totally different thing because it does not float around loose in various parts of the body—at first; and besides a cancer is always—at first—a purely local disease including all symptoms thereof! That is a thoroughly established truth—an axiom really!

We have four diseases, three of which are of endocrine origin and the fourth of unknown origin. The unknown quantity in every instance resembles the known quantities in many peculiarly distinctive characteristics, while it resembles no other class of known diseases in like manner. There are many other features common to cancer and to endocrine disorders besides the few barely outlined above. I am fully prepared to account for every proven cancer fact on the basis of dysendocrinism being the factor, or at least *a* factor, without which cancer is impossible; to do this without insulting either cancer facts or endocrine facts. This may seem like a case of exaggerated ego. As you please; but try me on any cancer fact. Remember, I do not say here that dysendocrinism is the basic cause of cancer; I say that dysendocrinism can account logically for all known cancer facts; freely admitting that something else may account for them better and that there may be actually no etiological connection at all between disorders of the ductless glands and cancer incidence.

But even granting the exaggerated ego, isn't the matter worthy of serious investigation? One thing is certain: Any theory of cancer, or none, as a working basis for treating cancer, would reduce the cancer death rate just as rapidly as does treating cancer on the theory that cancer is at first a purely local disease and is therefore curable by total early removal of cancers. We have been working on that basis with increasing zeal for many years. Death rate for cancer in 1920, highest on record.

This article is designed simply to stimulate possible readers to do a little thinking.

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EXOPHTHALMIC GOITER: THE PROBLEM OF RECOVERY.

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THOUGH on the offensive with respect to operative mortality and *immediate* clinical results in Graves' disease, surgery is still more than ever on the defensive with respect to justification of operative procedures and the completeness and permanency of recovery. It is the contention between the various schools of treatment and the scarcity of clinicians who understand the disease and its victim that render the treatment of such a patient an almost unmanageable task; when, in truth, the prognosis in the usual instance of Graves' disease should be far better than that of the usual instance of pulmonary tuberculosis—and recovery should be far more conclusive.

In this paper we are not concerned with toxic adenoma or hyperthyroidism, which indicates a state of thyroid hyperactivity superimposed upon an old-standing nontoxic goiter, and in which thyroidectomy, removing the causal adenoma, cures the patient. We shall here discuss exophthalmic goiter or Graves' disease, an affection of widespread etiological, clinical and therapeutic implications. The following deductions are based upon a prolonged, intensive observation of this disease, with a record of over four hundred* nonsurgical recoveries. It is the hope of the writer to imbue the reader with the importance of *permanent recovery* rather than *transient improvement* in the sufferer from Graves' disease.

The Pro and Con of Operative Mortality.—A recent patient of mine had made arrangements with a prominent surgeon in Philadelphia to be operated on. Being of an analytical nature, happily married and rather fond of life, he asked: "Now, doctor, you are a good surgeon, and I will probably live through the operation. Thus far I am convinced. But will I get well of my sickness? I must be reasonably certain of this before I enter the hospital." The surgeon, an honest, frank gentleman, informed him that statistics showed a large percentage of improvements, but as to complete recovery, time only could tell. "If you cannot give me more assurance than that, and if *you cannot show me surgical cures of my sickness,* you shall not operate on me!" He left the surgeon then and there, and after three months of nonsurgical management, this patient is rapidly becoming a normal individual. All evidences of the formerly typical Graves' disease are gone, excepting a still very slight exophthalmos which bids fair to disappear within the next two or three months. This is one of many similar instances that could be cited. The low operative mortality rate in exophthalmic goiter, in perfectly appointed clinics, is *surgically* fortunate. *Clinically,* it is unfortunate, in that its coercive influence causes hopeful

* This figure represents the number of patients discharged from active treatment up to July, 1920. These patients were followed up for from one to nine years to confirm the completeness of recovery. Patients seen with toxic adenoma, those under active treatment, and those seen in consultation but under the care of their family physician are not included in the above figure.

patients and many hopeful busy practitioners to put a blind faith in the knife as a remedial measure in this disease. Improvement in surgical technique and lowering of operative mortality rate are not *per se* good reasons for operating. The *rationale* of thyroidectomy should not be based upon the fact that only two or three in a hundred die of the operation. It is not justified even if many patients surviving operation are improved, if this amelioration of symptoms is incomplete and temporary. The patient rightfully expects but one result for the risk undergone and the resulting scar, and that is, an unequivocal *cure*—a complete, permanent, subjective and objective restoration to health, happiness, and utility. Surgery does not produce this result in exophthalmic goiter. Moreover, the mortality rate, were a broadcast average taken, is still genuinely high. Thyroidectomy of the hyperplastic thyroid is replete with peril, and is one of the most difficult and dangerous of surgical procedures, the *average* mortality rate of which is considerably in excess of 10 per cent. In my observations I find that in clinics where thyroid work is merely incidental to general surgery, a 50 per cent. mortality in Graves' disease is occasionally met with. Even in ligations, death occurs where it is least expected. If it is true that "a patient dead is 100 per cent. dead," we begin to dread lest in the very next patient scheduled for thyroidectomy "something goes wrong."

The Inconclusiveness of Thyroidectomy.—Aside from the operative mortality, the shock, and the well-known dangers and sequences associated with surgery of the hyperplastic thyroid, to all of which the patient is subjected without the substantial reward of clinical recovery, the *multiplicity* of operations, regarded by surgeons as necessary in a goodly percentage of patients, is not only an added peril to life, but diminishes the prospects of final recovery. This multiplicity of operations is dependent upon clinical relapse, but the surgeon usually ascribes its need to lack of "subtotality" of the original thyroidectomy. That the thyroid substance left by the surgeon sooner or later increases in size by cellular proliferation until there is again a fair-sized goiter, is not only seen clinically and in the postmortem room, but is proved through animal experimentation. Leo Loeb,[1] for instance, confirming the results of Halsted's experiments, found that after the subtotal extirpation of the thyroid in guinea pigs, the remainder of the gland showed hypertrophy in course of time. The piece of hyperplastic thyroid tissue left *in situ* still hyperfunctionates—still heeds the call of the uninfluenced, activating etiological factors which require the assistance of an *entire* thyroid gland for compensation, and soon this organ endeavors to become entire again through regenerating proliferating processes. Often the regenerated thyroid mass exceeds in size the dimension attained before operation, when the surgeon again feels "in duty bound" to operate. Surgical attack of the hyperplastic thyroid is physiologically, pathologically, and clinically inconsistent. It is the almost unanimous opinion of endocrinologists throughout the world, that though the disease asserts itself largely as a thyrotoxemia because of thyroid hyperactivity, the direct pathogenesis is of *pluriglandular* nature, the thyroid hyperactivity occurring merely as a link in the chain of events in which the thymus, suprarenals, pituitary, parathyroids, pancreas, and gonads play no small part. In brief, Graves' disease is a generalized neuro-endocrine[2] dysfunction, in which thyroid hypersecretion plays its part not causally, but sequentially. Thyroid hypersecretion is no more the main factor in the clinical picture of this affection than is splenic hypertrophy of typhoid fever the main factor in typhoid. The hyperactivity of the thyroid, whether the organ be enlarged or no, and the enlarged spleen, are results, not causes, of their respective affections. Each is a *constituent* of the syndrome of which it forms a part, and it is just as irrational for surgery to attack the thyroid in Graves' disease as it is to attack the spleen in typhoid fever.

Again, the thyroid responds to physiological demands, increasing in size and function during puberty, adolescence, pregnancy, and the menopause. The thyroid responds to pathological demands made upon it by infections, focal and general, psychic trauma, and glandular disturbances elsewhere in the body, frequently resulting in a decided increase in size and structure of the organ. In each case the thyroid performs an important duty—that of defending itself against irritating influences and dysfunction elsewhere, and in this defense the element of thyroid compensation and hypertrophy in the interests of bodily integrity is vital. It is just as absurd surgically to attack this compensating protecting organ resulting from the pathological demands, as it is to operate on it because of the physiological demands.

Irrelevant Analogies of Surgery.[3]—The surgeon occasionally asks: "Why remove diseased tonsils, and fear to remove a diseased thyroid?" Remove all of a diseased tonsil, and your tonsillectomy is complete and satisfactory; leave a part, and we are in course of time confronted with the need for another operation, the remaining portion having served as a root for the regeneration of the removed tissue. Remove the thyroid, however, and you ruin or kill your patient through the resulting myxedema. Leave a portion in order to conserve the life of the patient, and as with the lingering portion of diseased tonsil, sooner or later the entire gland is regenerated, and we have again a full-fledged example of hyperplastic thyroid. Again, "Why remove a diseased appendix," the surgeon argues, "and hesitate to remove a diseased thyroid?" The analogy is erroneous for (1) appendicitis is a local disease while Graves' disease has a widespread etiology, symptomatology, and physiological relationship; (2) the appendix is a vestigeal organ while the thyroid is a vital organ and must not be tampered with; (3) the appendix, in appendicitis, is the seat of germ activity while the hyperplastic thyroid is not infected; (4) operative removal of the appendix renders the patient well and healthier than ever, while the total removal of the thyroid means a slow death from cachexia strumipriva and partial removal does not cure exophthalmic goiter. It is obvious that, logically speaking, the surgeon is on the horns of a dilemma.

Opinions of Other Clinicians.—Let us examine the views of other observers interested in this subject:

Leonard Williams[4] insists that a large percentage

of patients with exophthalmic goiter could be successfully managed nonsurgically.

S. P. Beebe:[5] "The present low mortality of thyroid surgery in competent hands has been obtained at the cost of many unfortunate victims, as a rule."

Lewellys Barker:[6] " . . . It must be remembered, however, that even after surgical operation upon the thyroid gland, patients who have had Graves' disease with diffuse hyperplastic goiter, rarely regain perfect health. They require close medical supervision for a long time, often for the whole of life . . ."

F. B. Scott:[7] "That brilliant craftsman, the thyroidectomist, should become an anachronism, a tradition only of the dark days that are gone; and medicine, strong in physiological and philosophical faith, should resume her peaceful sway."

J. M. Pearson:[8] " . . . Strictly speaking, he (the surgeon), in the last event, does not *cure* the patient. To take away an offending portion of the body can in no sense of the word be considered the equivalent of restoring its integrity or causing the peccant portion to resume its orderly function."

Solomon Solis-Cohen:[9] "In Volume lxv (1911) of *Guy's Hospital Reports,* Dr. Hale White records the results of an attempt upon his part to trace the history of patients discharged after medical management during the last twenty years, and he finds that in about 80 per cent. the recovery has been permanent. In my own personal and consultation practice I have had the opportunity to observe a number of patients for periods varying from a few months to twenty-five years after apparent recovery from nonsurgical treatment. In but one instance has there been relapse, and in no case had death occurred from any condition with which Graves' disorder could be causatively associated."

Robert McCarrison:[10] "In four out of eleven 'cures' effected by operation at St. Thomas' Hospital, there was no evidence of Graves' disease found on microscopical examination (Mackenzie), so that in 36 per cent. of these cases which were classed as 'cures' we must admit either an error in diagnosis or conclude that the thyroid gland does not share the usual evidences of Graves' disease in a very much higher proportion of cases than has hitherto been supposed . . . the practice of operative interference with the thyroid gland in all cases of Graves' disease at sight and without applying all the resources of our art in the detection of its cause, as is now a very common custom, is one which cannot be too strongly deprecated. I am convinced that . . the number of cases in which thyroidectomy is performed will become smaller and smaller, and its practice, except in cases which have baffled the most painstaking investigation, will ultimately be abandoned."

David Marine:[11] " . . . We must look for the essential cause of exophthalmic goiter outside the thyroid. . . . From the standpoint of pathological physiology, this overactivity of the thyroid seems primarily a purposeful or compensatory reaction due either to the exhaustion or partial loss of the regulatory control over oxidation processes normally exercised through the sympathetic nervous system."

W. V. P. Garretson:[12] "The extirpation of a hyperactive thyroid gland is in most instances absolutely contraindicated and is a procedure based upon ignorance of glandular function. That gland is overactive in an effort to compensate for a deficiency of function elsewhere in the endocrine gland chain. The intimate interrelationship of glandular function teaches us that hyperactivity is a compensatory effort to offset hypoactivity elsewhere. In the case of the thyroid it usually indicates an ovarian or suprarenal gland exhaustion. Artificially supplying the deficiency under proper conditions will effect the desired results."

Russell, Millet and Bowen:[13] ". . . Although both Goetsch and Woodbury claim clinical improvement in almost all their cases following thyroidectomy, in no instance had their patients been followed over a period exceeding nine months. Furthermore, we do not feel that the degree of subjective improvement reported is sufficiently striking, in the absence of careful control by direct personal observation and the repeated use of function tests, to justify any dogmatic statement on this most important point. Particularly is this true since the physiological effect of operation and the recognized value of a subsequent rest period might together be sufficient to produce a definite, if temporary, amelioration of symptoms. We must not be unmindful of the danger of hypothyroidism developing in these cases as a result of thyroidectomy. As far as we know, no report has yet been published of basal metabolic estimations following these operations."

C. F. Hoover:[14] "I have been unable to see any justification for amputation of part of the thyroid gland as a direct treatment for Graves' disease."

And here are a few expressions from thyroid *surgeons:*

Carrington Williams:[15] "Group III (exophthalmic goiter) are improved by surgical treatment; the prognosis, however, is not comparable to what may be expected in Group II (toxic adenoma). We believe that the best results claimed in treating exophthalmic goiter have been due to operations on cases in Group II which is not exophthalmic goiter. The converse, however, is true—that is, that poor results are in cases which we would classify in Group III."

J. T. Mason,[16] of Seattle, commenting on "Mistakes Made in One Hundred Thyroidectomies," remarks: "Ligation will often precipitate a severe attack of hyperthyroidism. There is always a reaction; this is especially true following ligation. The collateral circulation is unquestionably restored within a few days. . . ." The probability is that to the shock of the ligation procedure there is added a collateral circulation which not only compensates but frequently over-compensates nature's desires for thyroid vascularization.

"Dr. Crile some years ago made the statement in reference to cases of hyperthyroidism (with exophthalmic goiter or not), that he thought it necessary after thyroidectomy that the patient be sent to a convalescent home in the country for six months if cure was to be permanent. He then went to work to say that such patients made as great an improvement without thyroidectomy as did those who had been operated on."—Tom A. Williams.[17]

Charles H. Frazier:[18] "How little is known today of the function of the thyroid even though sur-

geons have been removing them by the thousand! How many physicians still question the propriety of operating for toxic goiter and assume a skeptical attitude as to the reported results of surgical interference! It is my own belief that the present status of surgical therapy is but a stepping-stone to the development of some method of arresting the toxic functional disturbances of the gland and that eventually other measures, perhaps nonoperative, will be forthcoming, that will deal with the cause rather than the effect of deranged function and by removing the cause, break the vicious circle."

C. Capezzuolo,[19] in a review of the literature on the results of operative treatment of exophthalmic goiter, including his own experience, states that surgeons might find, on examination of patients some time after operation, many patients relapsed who had been reported as cured. Though a surgeon, this author insists that a course of medical measures should be tried repeatedly, and that the patient be impressed with the importance of cooperation in treatment.

André Crotti:[20] "One may think the distinction between these two forms of goiter devoid of interest. Therein lies the mistake, for the distinction between them is of great clinical and prognostic value. The thyrotoxic nodular colloid adenoma responds to surgical treatment far more readily and safely than the parenchymatous one." This is a subtle way of stating that the toxic adenoma is a relatively safe surgical risk, but that in the thyroid swelling of Graves' disease surgical interference is replete with disaster. We heartily agree with Dr. Crotti.

The Basal Metabolism Argument.—In a recent discussion on the floor of a Philadelphia Medical Society,[21] it was shown diagrammatically that after thyroidectomy in exophthalmic goiter the basal metabolism rate was very much reduced; after *x*-ray treatment the rate was reduced to a lesser degree, but there was no reduction following the administration of quinine hydrobromide. In this mechanical, mathematical, cold, offhand fashion, surgery was glorified as successful, and nonsurgical treatment as a failure, in the therapy of this disease. These patients, in whom the emotional element plays a leading etiological, clinical, and therapeutic rôle, were regarded as "cases"—the hlman element was forgotten, and cold, lifeless figures were juggled to the advantage of statistics. We admit that a reduction of some of the secreting thyroid substance, whether through the knife or the *x*-rays, yields a reduction in basal metabolism in a goodly percentage of "cases"; but this is temporary and is not "cure"; on the other hand, we refuse to entertain the idea that the casual administration of quinine hydrobromide is synonymous with a rational regimen of nonsurgical management of Graves' disease. Such hasty generalizations as give rise to the aforementioned statistics are responsible for the still prevailing chaotic status of the therapeusis of this disease.

Clinical Differences Between Thyroidectomized and Non-Thyroidectomized Patients.—Complex as may be the task of managing to a successful outcome an unoperated patient with exophthalmic goiter, the task is infinitely more difficult, though usually finally successful, in one whose thyroid has already been tampered with one or more times by surgery. In a previous paper,[22] I pointed out tha the main clinical differences between the two type of patients are as follows:

1. The course of the disease in a patient survi ing operation is usually more chronic, the bodi tissues becoming more firmly settled into morbi physiological function.

2. This confirmation of morbid tissue habit, a serting itself in hyperexcitability and excessiv catabolism, leads to greater degenerative chang than are observed in less chronic (nonoperated patients.

3. These changes, occurring in the circulato system, account for the numerous instances cardiac decompensation seen in operated patients.

4. The changes often show a predilection for th central nervous system, as evidenced by the greate predominance of insanity in operated than in un erated patients.

5. Not infrequently the thyroid gland itself the site of marked postoperative degenerativ changes, leading to the symptomatology of the so called "burned-out" goiter. Thus, a subject of thy roidectomy may, within a few months, present evi dences of both hyperthyroidism and hypothyroidism merging sooner or later into the complete clinica picture of myxedema or cachexia strumipriva.

6. Taking the foregoing factors into account, it is evident that the difficulties of the endocrinologis in the management of an operated case are at leas twice as great as in a case not interfered with by surgery; in fact, the obstacles to complete restora tion of health at times appear insurmountable.

What the Thyroid Means to Us.—"The thyroid is not essential to life, but it is synonymous with making life worth living."—George W. Crile.[23] If this is true, then the surgical removal of five-sixths of the organ deprives the patient of five-sixths of that which is responsible for making life worth living. The claim that the patient can get along with one-fifth or one-sixth of the thyroid tissue originally given him by Nature is fallacious. Though this may appear to be true during sleep and during moments of wakefulness akin to sleep when body and mind are at a low ebb of activity, and are, so to speak, hibernating, a normally active individual requires all his thyroid structure and function in order successfully to compete physically and mentally with his fellow men. If we were endowed with a kind of supernatural vision, we should see the thyroid serving as a physiological barometer, indicating every physical and mental stress and strain essential to the onward march of civilization. Not only are patients with lessened thyroid substance unequal to normal physical and mental demands, but since this organ plays an important rôle in immunizing processes of the body, a person possessing but a fraction of his thyroid is especially prone to infection.

The Solution of the Problem.—In Graves' disease, "the etiology of which is as elusive as the fountain of youth, the symptomatology of which is as varied as the colors of the rainbow, the syndrome of which is seemingly characterized by more vicious circles than are seen elsewhere in the domain of medicine —in brief, in this disease presenting so great a confusion of structural, functional, and psychic features for study that the keener the observer the

greater the problems still unsolved"—is it any wonder that the patient is a burden to the general practitioner? Is it to be marvelled at that the general practitioner, often finding himself incapable of managing his charge, and unacquainted with an internist especially trained and skilled in this work, turns the "case" over to the surgeon? The busy practitioner, though hopeful, does not expect cure through the surgeon's efforts—his experience in previous instances teaches him that the most to be expected from surgical effort is temporary improvement. But he is thankful even for this, as the responsibility for holding on to such a patient is great.

It is not the clinical cure that gives to surgery its present position in the therapeusis of exophthalmic goiter; it is its lowered *operative mortality* and the scarcity of understanding internists. This is an age of particularization. Specialization is still in the making, is still seeking to eliminate the term "incurable" from the vocabulary of the medical profession. Exophthalmic goiter is quantitatively and qualitatively as difficult a subject, presenting problems as many and as grave, requiring as much training and skill, as any specialty extant. With the development of such a clinician—a scientist capable of ferreting out all predisposing and exciting etiological elements in a given subject of Graves' disease irrespective of the time and pains involved—who can apply the necessary remedial measures whether they be prophylactic, dietetic, hygienic, medicinal, electrotherapeutic, psychotherapeutic, singly or in combination, as indicated after a careful individualizing analysis—in brief, with the appearance of an internist who, through years of patient observation can understand and speak the language of subjects of Graves' disease, there will be a cessation of surgical interference in this affection. Exophthalmic goiter will then cease to be the dread disease that it now is, and recovery will be but a matter of time.

Percentage of Nonsurgical Recoveries.—Does nonsurgical treatment of exophthalmic goiter yield 100 per cent. of cures? There are three classes of patients who are obviously unsatisfactory:* (1) Those who are evidently moribund. (2) Those who have developed a definite form of insanity, especially patients requiring physical restraint in order to overcome destructive tendencies. These patients are to be regarded as instances of mental aberration requiring chiefly the services of the psychiatrist. (3) Those patients who, after several weeks of observation, are discovered to be noncooperative. It is well to regard the first few weeks of treatment of any patient as probationary, and if, in spite of properly applied mental appeal, the patient is untruthful and otherwise unfair in obedience to orders, rather than court failure, the patient may as well be refused further treatment.

In brief, the properly equipped internist, after eliminating those who are moribund, the insane, and the noncooperative, all of whom constitute approximately 10 per cent. of patients who apply for treatment, should obtain close to 100 per cent. of cures. All things being equal, the prognosis in Graves' disease is excellent; recovery is complete and lasting, and the patient, taught how to "carry on" and imbued with a healthy philosophy of life, becomes and remains stronger in body and mind than ever before.

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1431 SPRUCE STREET.

PYELITIS: ETIOLOGY AND PATHOLOGY, WITH ESPECIAL REFERENCE TO INTERNAL THERAPY.

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ANATOMICAL and postural environments of the kidneys in man are, no doubt, the principal predisposing etiological factors in the occurrence of infections of the kidney pelves. The anatomical structure of the kidney pelves constitutes the first step in the predisposing cause of localized infections in this area. The pelvic base being larger, narrows down to the outlet at its junction with the ureters, forming a funnel shaped cavity. The pelves are located midway on the inner or ventral border of the kidneys. The postural environment of the kidneys is the second and most important

factor in the predisposing cause of pyelitis; in fact, it is the postural associated with the anatomic factor that completes the predisposing cause. The postural factor consists in the fact that the long axis of the kidney is parallel or perpendicular in the erect position to the long axis of the body or trunk and the short axis as well as the direction of the pelvic outlet are horizontal to the long axis of the body or trunk.

The postural environment being admitted as a predisposing factor, it is conceivable that drainage is not free and unobstructed if the body or trunk be maintained continuously in an erect or perpendicular, *i. e.*, sitting or standing, position. In this position the pelvic outlet being placed considerably above the lower segment of this funnel shaped cavity, forms a pocket, which exercises all the prerogatives of maintaining a cavity poorly drained two-thirds of the time. The cavity may permit the collection of urine which is maintained in a state of stasis. Static urine in this as in any other similar environment tends toward chemical and bacterial decomposition with the consequence of lowered tissue resistance producing in fact a "locus minoris resistancæ" which may permit infections in such a location. The remaining one-third of the time, when the body is in a horizontal or reclining position, is the only opportunity in which complete drainage of the pelves may be established, except in certain occupational pursuits which require much stooping and bending. Occupational environments may explain satisfactorily the relative frequency of the occurrence of pyelitis in the female whose occupational environments are not generally of the more violent stooping and bending character.

Notwithstanding the combined predisposing anatomical and postural factors associated with the kidneys, it is doubtful if infection of the pelves of the kidneys could occur without an exciting cause,[1] however insignificant, and one which may be of a specific nature, that is, bacterial selective action in setting up inflammation of the kidney pelves.[2] This exciting cause may be located in any part of the body. The immediate exciting etiological factor in the occurrence of pyelitis, preceded by a bacteremia, is no doubt from a focal area of infection such as may follow a general or local gastro-intestinal stasis, causing faulty digestive processes favoring fermentative changes and producing autointoxication through toxic split protein products, all of which encourage excessive multiplication of the intestinal bacterial flora and which are, no doubt, responsible for severe bloating and thinning of the intestinal walls, which condition favors and makes possible the migration of bacteria, possibly of an elective type[3] from the intestinal contents or other foci to the lymph channels and finally to the blood stream; or the foci may be of the more circumscribed type found in areas intimately associated with the gastrointestinal tract such as cholecystitis, gastric or intestinal ulcers, appendicitis, prostatitis, pyosalpingitis, etc., or the more classic foci occurring in or associated with dental, tonsillar and nasal areas or sinuses and from which bacteria also find their way into the blood stream, thus causing distant infections by metastasis because of this bacteremia. More rarely ureteral structures or ascending infections from the urinary bladder may be classed as exciting causes.

Having now established, practically, a predisposing as well as an exciting cause and the bacteremia for the metastatic connecting link between the two, we now have the resulting pathological picture of a pyelonephritis secreting pus and exfoliating pelvic epithelial cells together with the usual decomposed urinary débris from poorly drained areas.

Treatment.—The first essential is to locate and remove, if possible, the exciting cause. This step having been inaugurated the treatment of the resulting bacteremia and pelvic infection is the second consideration. Because of the fact that the kidneys are remote from the gastrointestinal tract and therefore not easily influenced by the oral administration of remedial agencies and because local applications through the ureter-cystic-ureteral route to the pelves, as well as biological therapy, have not proved satisfactory, it would appear that a more direct and effective method of treatment would be desirable. Pursuant to this desire, the intravenous application of remedial substances was inaugurated and the following preparations were used: (1) Hexamethylenamine in 20 c.c. negative pressure ampoules, containing 20 gr. of the chemical; (2) a 20 c.c. negative pressure ampoule containing sodium iodide, 28 gr.; creosote and guaiacol each ⅛ gr., in slightly alkaline normal saline. For the sake of brevity this latter will be referred to as "Solution Sodium Iodide Compound," both these preparations were manufactured by a Denver company specializing in ampoule medication.

These substances when applied intravenously doubtless enter into the general scheme of metabolism and are subject to the same osmotic processes that occur to food or any other material that may enter the blood stream and which carries corrective substances to all tissue cells by anasmotic action, and reversely the elimination of waste matter from the same tissues is by cataosmosis. The final disposition of such remedial substances, when administered intravenously, is by elimination almost entirely through the secretory organs and especially the kidneys by means of a cataosmosis. And it is at this point, as well as in the blood stream, that the therapeutic action of these substances is most pronounced. That the favorable results obtained in the treatment of a number of infections of the kidney pelves warrant the use of the vein for applying therapeutic measures in pyelitis may be confirmed, in a measure, by citing the essential facts of a few rather typical case histories selected from a number of patients so treated.

CASE I.—Mrs. A. L. B., age fifty-two; married; children; housewife.

Previous History: Negative up to January, 1919, at which time present illness began.

Examination: Tall, moderately fleshy woman of brunette type; skin showing evidence of jaundice; articulations of hands, feet and knees painful, inflamed and enlarged. Hands, arms, feet, ankles and legs up to knees edematous and skin glistening. Heart moderately enlarged, compensating, with aortic or second heart sound accentuated. Abdomen tympanitic. Urine: sp. gro. 1022, alkaline in reaction, bile tinted and heavy with sediment. Albumin, trace. Nucleoalbumin, trace.

Centrifuged at 3,000 revolutions per minutes for three minutes, showed 20 per cent. débris. Microscopic examination showed the preponderance of this sediment to be composed of pus cells; other cells indicated the presence of a pyelitis.

Diagnosis: Tentatively, chronic arthritis complicated or caused by a cholecystitis or pyelitis.

Treatment and Management: The introduction of a strictly regulated diet and systematic plan of elimination. The intravenous administration of sodium iodide compound. These injections were repeated every other day from January 23 to March 25, 1921. Improvement in all the enumerated conditions was soon apparent and continued until suspension of treatment. At this time the symptoms of jaundice, edema and the glistening skin were absent. Heart sounds and size more normal; symptoms of intestinal fermentation and intoxication improved or absent. Urine: light brown color, sp. gr. 1018, neutral reaction; albumin of both types absent; centrifuged sediment, one-half of 1 per cent. wet. Pain and swelling of the joints much improved. Patient formerly suffered a total disability, now walks with aid of crutches and gets in and out of bed without help.

September, 1921: Patient is maintaining her improved condition.

CASE II.—D. C., age nine, female, white. Family history, negative.

Personal History: Normal child up to first part of August, 1919, when patient began complaining of discomfort over hypogastrium and in urinating. These symptoms increased in severity in spite of all treatment administered, and the patient finally became bedfast, suffering great discomfit, loss of weight, and almost continuous desire to urinate. June 20, 1920, patient was removed to hospital and urine segregated by physician then attending. Urine from the right kidney was found to contain pus. Failure to catheterize the left ureter made a diagnosis of this kidney doubtful. Following the segregation the bladder was irrigated twice a week, and an autogenous vaccine of *B. coli* and *M. catarrhalis* was administered with good results, and the patient resumed her attendance at school. On December 20, 1920, the patient was again returned for a second segregation for diagnostic purposes. At this time it was reported by the parents that both ureters were successfully catheterized and both specimens contained pus, guinea pigs were inoculated, and later a report was rendered giving positive findings of a tuberculosis infection. However, on the fifth day following the segregating operation, the patient suffered a violent hemorrhage from the bladder, which was followed by total loss of bladder function and she was compelled to wear a diaper continuously up to February 1, 1921. Due to the urgent advice to have the child submitted to surgical interference a decision was made to change medical attendants.

The patient first came under observation February 2, 1921. She was of average height, emaciated; weight, 51 lbs.; languid; color of skin was of a yellowish-green and very anemic in appearance. Physical findings were negative, except that abdomen was tympanitic. Urine: Sp. gr. 1010; alkaline, and heavy with sediment. Filtered urine gave decided test for nucleoalbumin. Unfiltered specimen centrifuged at 3,000 revolutions per minute for three minutes registered 45 per cent. sediment, chiefly pus cells; other cells indicated pelvic inflammation.

Management: The patient having been allowed, heretofore, unrestricted use of food luxuries and confections, was limited to a well regulated plain nourishing diet; systematic elimination was established by natural, if possible, or forced processes, both of kidney and alimentary tract.

Therapy: The intravenous administration of sodium iodide compound, alternating with a selected dose of hexamethylenamine, 31 gr. in 20 c.c. ampoules, one or the other of these being injected daily from February 2 to February 21, 1921, when iron cacodylate, 1 grain in 2 c.c. ampoule, replaced the hexamethylenamine injections. March 15, 1921, a few doses of an autogenous vaccine were administered in place of the iron. These with the iodine solution were administered up to March 30, 1921, when tuberculin "O. T." in increasing doses, together with iron cacodylate, was administered intravenously every third or fourth day; the iodine solution was used as an interval treatment at this time. This routine was maintained through April and May to June 1, 1921.

Results: February 2, 1921 (before treatment). Urine, centrifuged at 3,000 r.p.m. for three minutes in graduated tube, registered 45 per cent. sediment, mostly pus. February 3, twenty-four hours after sodium iodide compound intravenous injection, sediment registered 9 per cent. February 4, twenty-four hours after hexamethylenamine solution, sediment registered 5 per cent. February 5, twenty-four hours after sodium iodide compound, 3 per cent. On this date, bladder function has been reestablished, excepting at night, sufficient to permit the patient to enjoy the comforts of a toilet; a little later on the child was able to resume her attendance at school. On June 1, 1921, after about four months of sustained management and treatment, the patient's condition was as follows: Gain of two pounds in weight. Symptoms of anemia absent, color of skin better. Patient moves with celerity, appetite good, severe tympanitic condition of abdomen absent. Urine: light straw color; sp. gr. 1016, alkaline; sediment 2 per cent. in graduated tube. Patient able to control bladder four to five hours when awake.

The patient's parents declaring their intention of visiting in the East at this time, the opportunity of visiting the Mayo Clinic was accepted and the child was submitted to their laboratory régime. A most thorough examination was made, particular attention being given to the pathology of the kidneys, which were found to be negative as far as a general or local tuberculous infection was concerned.. Original cultures made from the segregated urine was said to have contained growths of colon bacillus and *M. catarrhalis*. Cultures taken after one month's treatment gave *M. catarrhalis* only.

August 26, 1921, patient is maintaining improvement and gaining weight. Urine: Light straw color; sp. gr. 1014; slightly alkaline; albumin and sugar absent. Centrifuged specimen registers less than one-half of 1 per cent. sediment in graduated tube.

October 15, 1921, weight 58 lbs.

CASE III.—Mrs. J. T. B., age forty-five, white, housewife. Physical condition good, but anemic. Was under observation and treatment in 1919 and 1920 for colds and symptoms of rheumatoid arthritis. April 22, 1920, patient submitted to panhysterectomy. On the fourth day of convalescence, suffered a chill followed by high temperature and accompanied by severe pain over left kidney area, radiating downward and inward. Apparently hot packs, oral medication, local application of silver compounds to the pelvis of the kidney and dietary measures failed to control the condition.

May 25, 1921. The patient again came under observation.

Examination: Physical findings negative, except abdominal tympanitics. Temperature 103° at 4 P. M.; pulse 110, thin and tense; complaining of severe pain over left kidney area and radiating downward. Urine: Sp. gr. 1010, alkaline; color, yellowish white and loaded with débris. Albumin and sugar tests negative in filtered specimen; a small trace of nucleoalbumin. Centrifuged specimen, unfiltered, at 3,000 r.p.m. for three minutes showed 50 per cent. sediment. Microscopical examination showed this to be mostly pus cells; the character of other cells and débris indicated inflammation of the kidney pelvis.

Management: Diet was limited to nonprotein foods, except that contained in a vegetable diet. Elimination, both alimentary and urinary, established and maintained.

Treatment: The intravenous administration of sodium idodide compound, alternating with solution of hexamethylenamine, 31 grains or less, according to degree of bladder irritation; one or the other being administered daily up to June 29, when the hexamethylenamine solution was replaced by the intravenous administration of iron cacodylate, 1 grain in 2 c.c. solution; the iron cacodylate and iodide solutions were alternated at increasing intervals up to June 15.

Results: May 25, 1921, 4 P. M : Temperature 103°; pulse 110; sediment in centrifuged urine, 50 per cent.; sodium iodide compound administered. May 26, 4

P. M.: Temperature 99°; pulse 100, character improved. Pain greatly lessened. Hexamethylenamine solution administered. May 27, 4 P. M.: Temperature 98.3°; pulse 100, improved in character. Hot packs dispensed with; very little pain. Patient sleeps and rests well. Urine: Sp. gr. 1012; color, light straw; slightly alkaline reaction; albumin absent in filtered urine; centrifuged unfiltered specimen registered 4 per cent. sediment in graduated tube. From this time on the patient's condition gradually improved, under the same or similar management and treatment. The injections were administered at longer intervals.

June 15: Temperature normal since May 27; pulse 81, good quality; pain over kidney area absent. Physical condition improved, gained weight, color of skin normal, appetite good, sleeps well. Urine: Sp. gr. 1016; light straw color, transparent, clear; albumin absent; centrifuged specimen, 1 per cent. sediment. Improvement was gradual up to about November, 1920, at which time, because of a fear of a return of the trouble, she underwent the Fowler operation for the correction of the postural environment of both kidneys. September 20, 1921. Patient continues to enjoy good health. Urine: Sp. gr. 1016; light brown straw color; acid to litmus paper; albumin absent; sediment, trace only.

CASE IV.—Miss M. J. T., age twenty-four, white, dentist's assistant.

Previous History: Negative, in good health up to about September, 1918, when difficult breathing was experienced on mild exertion, increasing gradually until patient could not run or walk fast; also experienced difficulty going into the higher altitudes of the mountains.

Examination: October 1, 1920, anemic; abdomen tympanitic; cardiac hypertrophy and heart not compensating; mitral murmur and aortic second sound accentuated. Urine: Sp. gr. 1012; light straw color; alkaline in reaction; serum albumin, 4 per cent. wet; microscopic examination showed granular and hyaline casts, moderate percentage of pus cells and other cells indicative of kidney pelvis irritation.

Management: Diet limited and systematic elimination established. October 6, 1920, daily intravenous administration of sodium iodide compound instituted.

Results: October 15, breathing improved; heart sounds improved; hypertrophy diminished; abdomen less tympanitic. Urine: Sp. gr. 1017; neutral reaction; light straw color, clear; albumin, 2 per cent.

November 15: Breathing almost normal on exertion, i.e. running, climbing stairs, etc.; abnormal heart sounds absent; cardiac hypertrophy scarcely above normal; tympanitic condition of abdomen much improved; color of skin normal; physically stronger. Urine: Sp. gr. 1018, slightly alkaline; dark straw color, clear; albumin, slightly in excess of 1 per cent.

December 5: Physical condition good, heart sounds normal, difficult breathing absent. Urine: Sp. gr. 1016; neutral to litmus paper; straw color, clear; albumin, 2 per cent. Because of aversion to hygienic discipline and system, and an aversion to further intravenous treatment, the patient was referred to Dr. O. S. Fowler, genitourinary specialist. After *x*-ray examination of kidneys and pelves and the gastrointestinal tract, a 90 degree rotation and suspension (Fowler's operation) of the kidneys, for better dainage, was done.

July 1, 1921, patient apparently in perfect health; former physical findings absent. Urine: Sp. gr. 1022; slightly acid reaction; light amber color, clear; albumin absent; sediment absent.

CASE V.—J. H. E., age fifty-five, male, white, physician. Previous history negative up to January, 1920, when bladder irritation was experienced, gradually increasing. The urine was cloudy and gave a strong growth of colon bacillus. Cystic irrigation with different solutions, and especially plain warm water, gave temporary relief. About July 1, intravenous injections of solution of the sodium iodide compound were administered every other day, alternating at different intervals with hexamethylenamine solution, covering a period of about two months.

Results: Prompt and early relief from pain and frequent desire to micturate while under treatment. *X*-ray examination disclosed imbedded urinary calculi, which were removed, resulting in complete recovery.

Surgical interference, which must be considered mechanical in its nature, may be conservatively advised when the condition in the pelves of the kidney persists, however modified by improved management and treatment, or if it shows a disposition to relapse after apparent recovery. This mechanical change is accomplished by altering the postural aspect of the kidney rotating the long axis of the kidney from a perpendicular through and describing an arc of about 90° to or approximating a horizontal position in respect to the long axis of the body. The kidney is then suspended or fixed in this new position. This change from the normal anatomical position to a new postural environment causes the outlet of the pelves of the kidney to describe an arc similar to that of the long axis of the kidney, and in this new postural environment to point directly downward, which is the essential object arrived at, namely, to eliminate the predisposing cause of pyelitis by making it possible to secure free and unobstructed drainage of the pelves of the kidneys.

In view of our present knowledge of the exciting cause of the pathological condition it would be practising conservatism to reserve surgical interference for a later or a "last resort," otherwise the exciting cause would be disregarded and permitted to continue, and endanger the health and life of a patient to a greater degree from the prevailing infections than from pyelitis. Under proper management and treatment the exciting cause may be eliminated, in which case the postural environment as a predisposing factor in the etiology of pyelitis becomes almost negative in importance and, no doubt, curable by this improved therapeutic method.

Summary—I. The anatomical and postural environments of the kidneys are the chief predisposing factors causing pyelonephritis.

II. Intestinal stasis,—autointoxication, and autoinfections, from different foci or other obscure pathological conditions, are no doubt the immediate cause of pyelitis.

III. In metastasis the blood stream is the means of transmitting the infection to the pelves of the kidneys.

IV. Intravenous injections of selected solutions may exert in some cases a curative influence by attacking the bacteria either in situ or in transit through blood stream.

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Jubilee of Ramon Y Cajal.—On February 25, 1922, the first steps were taken in the direction of honoring Dr. Ramon y Cajal of Madrid. The meeting was summoned by Recasens, Dean of the College Faculty, and a committee has been chosen which represents the whole of Spain. The date is fixed at May 1.—*La Medicina Ibera.*

MEDICAL ANTHROPOLOGY.*

By EDWARD PREBLE, M.D.,

NEW YORK.

Our anatomies are descriptive rather than biometric and our physiologies are general and experimental rather than human in scope. Works on general anthropology take cognizance principally of racial differences and are largely restricted to special subjects like anthropometry, craniology, dentition, pigmentation, hair structure, etc. The natural result of this limitation is that a vast body of verifiable facts and other data either escape attention altogether or are so widely scattered as to be inaccessible at short notice. In 1888 the distinguished physiologist Vierordt collected the recorded biometric data of man under the designation of "Anatomical, Physiological and Physical Tables and Data," the last edition being published in 1906. It is now antiquated and since it is merely a collection of figures is completely lacking in human interest. For a work of such importance it is but little known and apparently has never appeared outside of Germany.

For many years in connection with medicoliterary research the author has been jotting down odd figures and facts which every medical practitioner should know or at least know where to find quickly. In not a few cases he has located special information only after much pains. He has collected about 4,000 of these data and is convinced that the time is ripe for publication of a special volume with the title "Medical Anthropology" or "Human Biometry." Such a book might form a basis for a course of study to be affiliated with Forensic Medicine or possibly taught in the first year of the curriculum.

The following paragraphs show the scope of such a book and under each head are given a few sample data.

Anthropometry: Weights, Surfaces, and Volumes.—While there is a redundancy of figures on total weights there is little enough on the weights of individual segments of the body and the entire subjects of surfaces and volumes are but scantily represented. The superficies of an average man is 19 or 20 square feet, while the total volume in c.c. must agree closely with the weight in grams because the density of the body is so nearly that of water. If we select an adult of average dimensions who weighs stripped 140 lbs. the head and neck together should weigh about 10 lbs., the hand 1 lb., the foot a little over 2 lbs. (2.3), the leg 6.7 lbs., etc. The area of the head and neck should be a little over 200 sq. in.; that of the hand 63 sq. in.; foot, 100 sq. in.; leg, nearly 200 sq. in., etc. If the volume of the individual be 4,000 cu. in. the volume of the head and neck should be something less than 300 cu. in., the hand 25, foot 50 and leg 180 cu. in. A knowledge of the areas of the segments of the body has a practical value in the case of extensive burns, for if more than a given total is injured the prognosis is unfavorable. In regard to weights of segments a butcher could perhaps make a much better estimate of the weight of a member in a human subject than could the amputating surgeon.

Biophysics.—Many interesting data are to be found under this head in works like Broca's "Physique Médicale" and Burns' "Biophysics." Some of the more recent developments not found in the older works have to do with electrophysics. It is possible with a diathermy high frequency circuit to add as many as 1,500 calories to the daily thermogenesis of the body, which amount alone nearly equals the basal metabolism of some individuals and suggests the query "could these calories act as food sparers in the same proportion?" We know, of course, that a definite amount of body covering, by preventing radiation, is equivalent to a definite number of food calories. Data in reference to ionic transport in which lithium ions can pass through the unbroken skin of the foot and shortly reappear in the urine are among the more impressive facts in electrophysics.

Chemistry of Body; Food and Nutrition.—The body is about 66 per cent. of water; the organic matter is nearly 30 per cent., and the balance is inorganic. Of the organic matter carbon makes up 18.4 per cent. and oxygen 6 per cent., the balance being about equally divided into hydrogen and nitrogen. The amount of sodium in the body is about 1,650 grams. Potassium (niter) can drive some of the sodium out of the body. An excess of sodium in the body means increased concentration of HCl in the gastric juice. The average amount of iron in the body is 3.2 gms., chiefly in the hemoglobin. Potassium occurs in every cell in the body.

Pure food has no flavor save in the case of sugar, which is not a natural food; fat, starch, and protein are all insoluble and hence tasteless. The mineral requirements of the body are readily supplied from the food with the possible exception of lime, which is sometimes lacking. Those who live on animal food do not eat or crave salt; the converse is true of vegetarians. Rice is the food that throws the least work on the kidneys; even potatoes contain fifty times as much saline matter. A man can exist barely four days without water.

The glycogen of the liver and muscles is used up far more promptly than the stored fat; it is the "quick assets" of the body. The liver, which weighs 3.5 lbs., may contain as much as 10 oz. of glycogen and the muscles of a very muscular man as much as 3 lbs., although such figures are extreme; usually the muscle glycogen is not much in excess of the hepatic. Muscle glycogen is utilized only in muscular action; hepatic for the body as a whole. The amount of blood sugar in health is not over 2 oz., while in diabetes it may go to 20 oz.

An adult may lose 2/5 of his weight in a fast and still recover. With plenty of water a man may fast for as long as thirty days and recover. In a protracted fast the brain and heart show practically no diminution. A child who has lost a fourth of its weight cannot recover. The basal metabolism of a faster does not go below 30 calories per kilo. Subjects have been nourished by rectal feeding for as long as five years.

*Every statement in this article and every fact in my collection is made on the very highest modern authority. To quote the references would, however, require far too much space. Nevertheless, the author disclaims any insistence on the correctness or finality of the statements and realizes that in some cases they may seem to conflict with every-day experience.

Thermogenesis and Effects of Temperature Change.—A subject with fever actually expands from the increase of temperature, and with fever of 104° F. he has expanded about 1/10 of 1 per cent. of his normal volume; or in other words has gained about 60 c.c. of volume. During sleep the thermogenesis has decreased to about 65 hourly calories, or less than half the production of a man engaged in light labor. In regard to the economy of diet possible through the fluctuations in wearing apparel, a nude man generates half as much again heat as a man who is fully clothed by reason of his increased radiation.

It requires a heat of 122° F. to coagulate the albumin of the body. In sunstroke the temperature may reach 118° F. and survival has occurred after having attained 115° F. Man can survive for a considerable time in an oven at 132° C. (265.6° F.) if the air is dry, but 50° C. (122° F.) is his limit if the air is moist. Application of cold to the surface increases the hemoglobin of the blood up to 14 per cent. Shuddering from the cold is a reflex defense reaction which tends to warm the chilled surface. Exposure of the nude body to 20° C. (68° F.) causes such an increase of blood pressure as to determine in some subjects cerebral apoplexy. When one hand is immersed in cold water the temperature of the other is lowered. Hot as well as cold water can cause gooseskin.

In polar regions colds in the head and pneumonia are unknown while the sterile character of the feces should render impossible autointoxication and its supposed consequences. In the tropics colds are readily contracted as cool nights follow hot days, evaporation is extreme, and winds are prevalent, all of which factors chill the surface. Atropine injections, by checking perspiration, tend to favor sunstroke, and monkeys supposedly immune to the latter may be fatally sunstruck under the influence of atropine. The degree of dampness in which it is unsafe to live may be measured by the increase in weight of 2 lbs. of chloride of lime, a gain of 12 grains being excessive.

Circulation and Respiration.—The heart does not get its growth at maturity but continues to augment in weight until middle life. During the period of general growth it increases in mass four times as much as the great vessels. The socalled apex beat is not due to the contact of the apex of the heart for the ventricle never leaves the chest wall; it is really due to the impact of the left auricle. If a subject with good chest expansion inflate to the utmost he may be able by compressing the subclavian artery to shut off his wrist pulse and thereby simulate heart disease. In the first two hours of sleep there is a notable fall of blood pressure. In the corpulent man a cramped sitting posture by compressing the femoral and popliteal vessel may cause extensive edema of the legs and simulate cardiac or renal disease; the edema, however, stops at the shoe line and does not involve the feet. The amount of blood in a given individual may be estimated by dividing the weight by 13—an adult of 150 lbs. should have about 11 lbs. of blood. The ratio in the newborn infant of blood weight to total weight is 1 to 19, and the young child has much less blood to lose than the adult. Menstrual blood is commonly said not to coagulate; it does, however, coagulate slowly but often does not appear to clot.

In a few individuals the heart may be stopped at will while others can voluntarily contract the diaphragm. An adult man inhales 7 lbs. of oxygen daily, of which 2 lbs. reach the blood. Carbonic acid is not a poison; man constantly rebreathes it; it is the normal stimulant of respiration and has been classed with the hormones. Man can develop tolerance to very large percentages, even ten fold the normal pressure.

Forced Respiration: Effects of Changes in Air Pressure.—Forced breathing by exhausting the carbon dioxide causes suspension of breathing or apnea. After increased respiration the subject can hold his breath for three or four minutes, although without this provision the usual duration is but thirty to forty seconds. If a subject cannot hold his breath for twenty seconds something is wrong and some anesthetizers would not give such a man ether or chloroform. Intense pain by causing forced breathing may lead to apnea, so that in some parts of the world a severely injured man is "smothered," which act enables him to retain his escaping CO_2. Apnea from forced respiration is the same as acapnia or absence of carbon dioxide. Cyanosis or livid discoloration is not due to accumulated CO_2 but to absence of oxygen (anoxemia). A man who has been completely winded from running regains his breath while counting sixty. A man, may, if he will try, make himself blue in the face by forced breathing.

A man can keep alive at a pressure of 5 atmospheres. The pressure in a caisson seldom exceeds 4 atmospheres. At 3 atmospheres speech is difficult. Compressed air by quickening the cerebral circulation increases mental and physical vigor (under ordinary conditions the term "compressed air" means a pressure of 2 atmospheres). In work in the caisson the air is forced into the body, especially the nitrogen; and the escape of the N under decompression causes caisson disease. The record for deep-sea diving up to 1917 was 360 feet with a special suit of heavy armor. Before this feat the record for working divers was 192 feet and experimental divers, 210 feet. The total safe duration under water is twenty-five or thirty minutes and a longer sojourn usually means decompression paralysis. A man loses one pound or so of weight on the higher mountains. In rarefied air the intestinal gases expand. Aviation statistics are changing so rapidly that not many figures can be quoted.

Alimentary Canal.—A coated tongue means a disused tongue; a man who has been up all night does not have a coated tongue in the morning. "Smacking the lips" is a misnomer; it is the tongue which makes the sound. In a general drying out of the body as in prolonged deprivation from water and in cholera the space under the tongue retains its moisture longer than any other locality. But for the presence of the frenum the tongue would be swallowed. It is difficult or impossible to swallow with the mouth open.

The stomach, like the skin, has a gas exchange; the blood gives up CO_2 to the organ and takes up oxygen from the same. The acidity of the stomach may be so marked that in pyrosis the pharynx may

be burned. That the stomach is essentially a motile organ which is very seldom at rest has long been known; in fasting stomachs the rhythmic contractions persist as hunger cramps. The average capacity of the adult stomach is about 2½ pints, its length is 10 inches, and its weight 4½ oz., while the average weight of its contents is 7½ oz. Swallowed sea water causes a contraction of the pylorus so that it cannot be absorbed; but sea water will quench thirst when freely infused into the colon. Finely powdered glass does not injure the stomach. Air swallowing may be prevented by holding a cork between the teeth. Drinking the two parts of a Seidlitz powder separately does not injure the stomach, but is in common use to aid in physical examination and *x*-ray work. About 6 or 7 gms. of pure chlorhydric acid are secreted in twenty-four hours. Hunger cramps recur about once in thirty seconds. These pains may be promptly stopped by running. There is enough muscular fiber in the small intestine to make a blacksmith's biceps. The first passage of intestinal gas after a meal means that the food has passed into the colon. Constipation is not necessarily a drawback; in some individuals the utilization of food is so complete that there is little fecal matter to come away. Fasters pass socalled fasting feces. Inflammable gas may escape by either mouth or rectum if there is sufficient cellulose in the food and may explode on exposure to flame with production of severe burns.

Osseous System.—The skeleton of a man of 150 lbs. weight should weigh 24 lbs. Bone will withstand twice the pressure of oak wood. Contrary to the general belief small muscles may be associated with large bones and vice versa. The age of a deceased subject may be told by a knowledge of the periods of ossification and consolidation, while in the living subject it may similarly be determined by the *x*-ray. The sternum of the male is longer than that of the female in the ratio of 8 to 7, this difference in length being in the gladiolus; it is of value in determining sex from the skeleton. In the male again the lower portion of the sternum is much better developed, and the costal cartilages are well separated. The contortionist can bend himself double because his lumbar spine is flexible; it retains the flexibility of the young child, which normally decreases after the sixth year. The humerus is twisted on its axis from 12 to 20 degrees in the white race; in the negro the angle of torsion is 35 degrees. But three people in five have three phalanges in the great toe; in the other two the two distal phalanges are fused. In true flatfoot the tendo Achillis is never straight and the lower end is deviated externally. The range of mobility of the joints is but little studied, but if this is ignored there is no way to determine the impairment of motion as a result of ankylosis, etc. Thus the knee should flex to 140 degrees, the elbow to 150, pronation is normally 180 degrees, and so on with other flexions, extensions, rotations, abductions, and adductions.

Muscular System.—Muscle tone is abolished during sleep and if a person can inhibit his muscle tone voluntarily he can put himself to sleep. Prolonged muscle tension means a great waste of energy while efforts limited to rapid contractions or twitches are highly efficient. Shuddering produced by cold or fear is a defense reaction to restore the peripheral circulation. The weight of muscle may be notably increased by injecting water into the bloodvessels; a fact known to some butchers. Muscle makes a resonant sound in contracting, with a pitch of 36 to 40; it may be heard in the contracting biceps with the stethoscope or perceived by contracting the jaw muscles with the ears stopped. Workers who use the flexor muscles extensively are apt to carry the arms in semiflexion. During any kind of mental excitement, as when watching a contest, the muscle tonus is increased perhaps to tonic contraction. In the latter there is no oxidation—no CO_2 is produced nor is there any increase in thermogenesis, but creatine is formed from protein waste. Voluntary movements can occur in 1/10 and even in 1/20 second. Trained muscles produce less fatigue-toxin than untrained, accounting for their superior endurance. Trained muscles react to electric stimulation with unusual vigor, and this test may be used in determining the condition of a pugilist, etc. One should never begin a strenuous effort of any kind without previous limbering up; there is a certain resemblance between untrained muscle and unlimbered trained muscle. A nervous subject may be betrayed by socalled static tremor which is seen when the edge of the forearm is rested on the edge of a table. There is a connection between intellectual vigor and the strength of the handclasp; the grip of the civilized man is much firmer than that of the savage. A man's clasp is one-third stronger than that of a woman.

Brain and Nervous System.—The brain comprises 80 per cent. of water and is practically the only organ in the body to contain no ordinary adipose tissue. The organ is never at rest despite the function of sleep and during a prolonged fast loses no weight. It is but 2 per cent. of the body weight in the adult, but 12 per cent. of the same in the newborn. The brain weight of the stillborn is heavier than that of the live born, which accounts to some extent for stillbirth. The brain rests on a water bed—the subarachnoid portion of the cerebrospinal fluid. Brain substance has a remarkable faculty of expansion and compression, despite the large content of incompressible water. Despite slow development of the mental powers every cell of the adult brain is present at birth and at seven years of age the organ has nearly attained its full weight. Ninety per cent. of brain substance is composed of neurons—about 12 thousand millions. The optic thalamus never undergoes atrophy.

While the mass of the brain shows great variability, that of the spinal cord is almost constant—27 to 28 gms. The normal tension of the cerebrospinal fluid is 150 mm. water.

Sleep.—A righthanded man sleeps better on his right side and a lefthanded one on the left side. During a night's rest the weight of the individual diminishes by one pound. During sleep the volume of the limbs increases. As one falls asleep the eyeballs turn up and a little out. During sleep the pupils contract to the maximum and dilate as the subject wakens. Day sleep is not normal sleep, but a special type, lighter than normal. Those who sleep amid noise are apt to waken when the noise ceases. Lost sleep may be made up by about one-half of the amount lost. One asleep is like a fur-

nace with fire banked; he consumes but half the waking requirement of oxygen; even in the young the joints are stiff on waking from immobilization of sleep.

Special Senses: Eye and Ear, Vision and Audition.—The distance between the eyes is from 55 to 65 mm. (2.2 to 2.6 inches). The realistic novelist who depicts the close-eyed villain may express himself quantitatively. The radius of curvature of the cornea is 7.8 mm. The eyeball is a shade less than an inch in diameter. The cornea occupies one-sixth of the total surface of the eyeball, and attains its full size at the age of three years. The average width of the pupil is 4 mm. Severe and agonal pain causes the pupil to dilate, which fact may expose a simulator. Blue eyes may appear in dark subjects, but when the blue-eyed intermarry they cannot produce dark-eyed children. An iris appears blue or gray because pigmented on one side only. The extent of retinal surface to be affected by light is 20 sq. cm. and the retina can perceive a flash which lasts only 1-8,000,000 of a second.

The skin of the upper eyelid is the thinnest in the body and the most lax. Its subcutaneous tissue is the only one to contain no adipose tissue, even in the most corpulent. A wink lasts one-tenth of a second, repeated about ten a minute. The eye muscles are the only voluntary muscles that never become fatigued. The eye itself has no expression, the latter being due to its motion.

The external ears show no atrophy in old age and in some individuals continue to enlarge slightly. A pull on the tragus may slow the action of the heart. The large ears of the consumptive are partly an illusion because of the wasting of the surrounding tissues. The drumhead is almost as large at birth as it ever becomes. It is of the same thickness as the cornea—1 mm. Acuteness of hearing increases up to the age of twelve years. A man may make himself heard in ordinary conversation in the open air at a distance of 200 feet. The whispering distance is from 65 to 80 feet and in forced whispering nearly 100 feet. There is no standardization of colored audition; certain individuals merely react to special sounds by special color images.

In congenital deaf-mutism there is a notable immunity to gyratory vertigo—at least one in three does not develop it on any provocation.

Special Senses: Smell, Taste and Touch.—The blindfold subject may be unable to tell the taste of foods. When the tongue is cocainized it can distinguish only salt, or in other words fails to perceive bitter, sweet, and acid. A very little bitter added to a sweet solution makes the taste sweeter. An unpleasant taste sets up a defense reaction, the facial expression mimicking that of antagonism. Mercaptan, the malodorous substance of intestinal gas, may be detected in the air in a percentage of 1 to 25 trillion and is therefore much stronger than musk. The sense of smell is quickly fatigued by smelling strong substances. One strong odor can suppress another when they are mingled. The odor of sweet fresh air incites nasal respiration, as shown by dilatation of the nostrils. The extremely acute touch perception of the tip of the tongue is wasted in nature, even by the blind. A leg fallen asleep feels heat but not cold. A cocainized conjunctiva still retains its sensitiveness to heat and cold. One does not smell the fumes of ammonia and the disagreeable sensation is one of general sensibility to pain.

Genito-Urinary Apparatus.—In about 5 per cent. of women the pubic hair is of the male pattern, a fact worth remembering in sex identification. Each kidney should supply to the bladder 1 oz. of urine for each hour. The bladder is at the peak of its expulsive power at the age of eight years. Clinicians have made the diagnosis of diabetes from the peculiar white spots on the shoes due to the presence of glucose. The testicle varies greatly in size and when but 1½ inches in length is within normal limits. The gravid uterus is sixty-four times as heavy as the unimpregnated organ, the former weighing 2 lbs. Beets eaten in large quantities may color the urine red and simulate hematuria; in such a case the feces are also red.

Skin, Pilous System.—The skin has a gas exchange like the lungs but only 1-100 as extensive; the weight of the skin, which is about 10 lbs. in the adult man of average dimensions, agrees roughly with that of the abdominal viscera; gooseflesh on a drowned body indicates that the subject was living when he entered the water. To demonstrate the fine down on the skin spray it with water from an atomizer and then examine with a magnifier. Two or three beads of water will be seen to cling to each downy hair. Thought lines appear in the forehead at the age of two or three years; many zealots and dreamers who do not think have smooth foreheads. The amount of perspiration for twenty-four hours agrees roughly with that of the urine and also with that of the aqueous vapor from the lungs. To make certain that a given area of skin cannot perspire it should be wrapped in rubber tissue. The scalp measures about 120 sq. in. and contains about 1000 hairs for each inch—hence about 120,000. The number of hairs in a beard is about 15,000 and in a moustache 1,200. The scalp hair may stand from anger as well as fear and under the influence of these emotions curly hair may become straight. Erection of scalp hairs is common in the insane, while baldness is rare among them. The life of a scalp hair is from 2 to 6 years and the life of an eyelash about 135 days. A scalp hair may sustain a weight of 6 or 7 lbs. and is so elastic that it stretches from one-fifth to one-third its own length. That gray hair is due to the entrance of air bubbles within the hairshaft is proved by the fact that the original color is restored when the cut hair is placed in a vacuum. The hair in all races of men contains the same proportion of sulphur—about 5 per cent. Polar races do not have heavy beards, while the latter are seen in white residents of the tropics. The lunula, or half moon, however absent on other fingers, is always present on the thumbs. The normal rate of nail growth is 1 mm. in ten days and there is no limit to its growth. A nitrate of silver stain on a protected finger nail will be absorbed in two weeks.

Attitude, Posture, etc.—The socalled hypererect attitude is the attitude for efficiency, the muscles being taut and the chest expanded; it is the attitude of courage. In the drooping attitude conditions are reversed, there being increase in the spinal curvature and most of the weight is on the heels. The head tends naturally to fall backward as does also the trunk, but this is corrected by muscular

tone. It requires 25 per cent. more energy to sit up than to lie down, and to sit up and talk requires 45 per cent. more. Men with poor sight have a bad posture, as they tend to bend forward. In standing at ease the subject constantly shifts his weight from one leg to the other. When man assumed the upright position he began to suffer from enteroptosis and hernias, while the soft tissues of the abdomen and groins became exposed to injury. The sacroiliac joints were inefficient. Constipation and dystocia became evils along with spinal curvature. The valves of some of the veins, adapted to the quadrupedal posture, are of no value to erect man.

Locomotion.—Man rises but little in walking—not over 15 mm. on an average. The stride of a man at a brisk walk is about 30 inches. In a true walk one foot is always on the ground and the knee joint is straight when the foot leaves the ground. In the walk the head sways from side to side. Vigorous walking exercises two-thirds of all the muscles. At a walking speed of two strides a second there begins a falling off in oxygen intake. A runner should be able to hold his breath for 130 yards, but if he inhales oxygen first he should run from 220 to 300 yards without breathing. A runner usually gets his second wind after three minutes of running. A runner while filling his chest should take about thirteen strides, but during expiration can take but five. Running and rapid walking cause the hands to swell.

Exercise, Effort, Fatigue.—In intense physical effort there is a tendency to close the eyes because owing to the engorgement of the orbital veins the eyes protrude and the lids instinctively seek to force them back. In intense effort the facial expression is that of rage. In strenuous effort the platysma muscle is tense and therefore termed the "muscle of emphasis." A sprinter can run 1,000 feet at the rate of 30 feet a second, 2,000 feet at 26 feet a second, and so on. A little girl who skips the rope 100 times in quick succession has raised her body the equivalent of nearly 400 feet. In violent sustained effort a subject may lose from 5 to 8 lbs. the first hour. In a six-day walk more nitrogen is destroyed than can be made good by any amount of eating. During sustained and strenuous exercise the red blood cells increase up to 25 per cent. of the original number. All kinds of exercise tend to employ unduly the flexors at the expense of the extensor muscles. The condition known as "muscle bound" is due to unnecessary contraction of the antagonist muscles of those actually in use. Errors in work begin to appear as efficiency falls off. The optimum indoor temperature for mental work is 68°-70° F.; the optimum outdoor temperature for the same is put at about 38° F. Disagreeable weather cuts efficiency in piece-work 10 per cent. Intervals of rest, short or long, greatly improve efficiency. School efficiency is best on Monday and Tuesday after the Saturday-Sunday intermission, and declines slowly from Tuesday to Saturday. In handling heavy material the greatest efficiency is seen if the laborer is "off the load" more than half the time. The modern typewriter is a highly inefficient machine because the keyboard is not scientifically arranged. Fatigue powerfully weakens attention and memory and in writing the subject omits letters, syllables, and words. Only voluntary muscles feel fatigue and not then when they act automatically. The socalled nervous subject tires rapidly.

Mental Processes and Faculties.—That which attracts attention inhibits activity; in extreme attention the body is bent forward and the lips compressed; attention is not a steady but an oscillating process; it becomes fatigued before interest is lost; close attention causes synergistic movements of various muscles; attention energizes motion. Profound attention leads to abstraction or absent mindedness, and, in the highest degree, ecstatic and hypnotic states. By fixing the attention on the hand—for example—it may become actively congested and thus when immersed in a basin just full of water may be made to overflow the latter. In close attention the breath is held. Suspense increases and maintains attention but perception is less accurate during suspense. In suspense the ability to appreciate the passage of time is weakened.

Memory may be visual or auditory. Memorizing cannot improve memory. The more rapid the memory the more accurate. Fatigue notably injures the memory. Artists and sculptors have good visual memories and some can even dispense with the model as the work advances. Women have better visual memories than men, while men of scientific attainment and training have poor visual memories.

Actions are motivated by mental pictures. The mind can learn to suppress from its consciousness anything which is useless to it, such as the tick of a clock. Monotony and boredom slow up work and make it a burden, but furnish powerful springs of action in other directions. The sense of danger intensifies the feeling of existence.

Cerebration is usually intensified just before death. Cerebral activity affects muscle tension so that the so-called mind-reader can, by feeling the muscles, divine the direction of thought. The mind may function better if the body is recumbent and in cerebral torpor may be revived by lying flat.

Articulation and Phonation.—In whispering the larynx is not required. Distinct articulation is such a strain on the voice that voice users tend to slur their words as much as is possible. There can be no speech without breath. Articulation is strongly individual and useful in identification. In pronouncing labial letters the soft palate is raised and the uvula shuts off the nasopharynx; hence in palate paralysis these letters cannot be pronounced. Nasal sounds are not the sounds made in nasal obstruction but the contrary—sounds made with nasal respiration. They are recognized by the cold mirror, bubble, and flame tests.

In whistling, the lips, held rigid, are made to vibrate in unison with the vocal cords. In the phenomenon known as mental singing the larynx rises with the high notes. Singing off the key need not be due to defective sense of melody; it may be the consequence of over-rigidity of the intrinsic muscles of the larynx, the so-called "tuners of the vocal cords." In trilling the vibration believed to occur in the larynx cannot be felt. The tremolo is not produced by the larynx, but is a phenomenon of breathing. The larynx determines the pitch of a vocal sound. In aphonia from vocal strain the voice may sometimes be made audible by pulling the larynx downward. Whispering, unlike speaking,

can be performed during inspiration. In the falsetto voice the soft palate is raised more than in the natural voice.

At least 3 per cent. of the people in the United States are sufficiently hard of hearing to profit by lip reading which may be learned in from three weeks to three months.

Ventriloquism must not be confounded with polyphony; the polyphonist imitates voices and sounds of all kinds. In ventriloquy proper the voice is not disguised. Ventriloquism does not fatigue the speaker. In ventriloquism the intranasal pressure is higher than in normal phonation; the singing tones are an octave higher; the larynx does not move but the cords approximate the falsetto position.

Emotional States.—The muscles of the face are the most affected by the emotions and next in order come the respiratory muscles. When emotions are suppressed the pupils dilate suddenly, the eyes becoming "black." Children begin to blush at three or four years of age and women blush throughout life, the tendency showing a special increase in both sexes at puberty. Vision is weakened by strong emotions. The feeling of shame affects the muscles of both the eyeball and lids. The feeling of pride causes the chest to swell and this reaction is seen in connection with praise and flattery. The feeling of physical superiority causes the subject to straighten up to his full height and to expand his chest, and that of moral superiority causes him to roll up his eyeballs and flicker his eyelids while he may also raise his hands.

Fear may blanch the surface and empty the blood-vessels of the skin so completely that the rings drop from the fingers. It parches the mouth so that the tongue cleaves to the palate—the brave man spits to show he is not afraid. While extreme fear paralyzes, a certain degree increases normal energy. Fear and terror cause a shuddering which is conservative because it stimulates the arrested peripheral circulation. In fear and also in anger the scalp hair may stand up. Anger causes turgescence of the veins of the head and neck which cannot be simulated; it causes a flow of saliva so that the subject in talking may emit a spray or froth at the mouth; the eyes may be reddened, including the fundus, and the subject may see red. When anger reaches a certain point the subject may destroy objects or injure himself. In irascible men the nostrils quiver, and in actual anger the respiratory muscles are disordered and the voice affected; the blood pressure may rise 25 per cent. and cause apoplexy. Some subjects choke from anger and attack the object of wrath instinctively to save themselves.

Female Sex.—The thigh bone of woman is shorter than that of man which in part accounts for the difference in stature. White women have a much greater tendency to prognathism than white men, for the latter very seldom exhibit it; hence in masculine disguise an orthognathous woman is more apt to escape detection. The feminine gait is chiefly psychical and not due to the formation of the hip-joint. The duration of the function of menstruation is thirty years. The normal duration is from two to five days; normal interval twenty-six to thirty-one days. The normal loss of blood is from 1 to 8 oz. Menstrual blood is commonly said not to coagulate but it does clot very slowly. The normal duration of pregnancy is 240 to 320 days. The umbilical cord shows extreme variability—from 3 to 75 inches. The amount of amniotic fluid is from 1 to 2 pints. The length of the normal fetus at term in the United States is 20 to 21 inches, weight 7 to 7½ lbs. The sex of a fetus can be made out at the end of the third month. A primipara is conventionally termed elderly at the age of twenty-eight. By the eighth day of the puerperium the womb should be reduced to half the size at term. The average total amount of lochial fluid is 3½ lbs. The average yield of breast milk for the first week is a pint and the maximum is in the eighth month of lactation when it averages a quart. A nursling, according to age, takes from 50 to 200 c.c. of milk at a feed. The appearance of the white lochia is at the beginning of the second week and it should persist for six weeks, these figures being of use in fixing the time of delivery. A woman, pound for pound, gives only about half the amount of milk as a cow. The menopause may vary in duration from zero to three years. The average age of appearance in American women is forty-nine years, and the extreme limits forty to fifty-five. Impregnation at the age period of fifty-fifty-five is not uncommon irrespective of the presence or absence of menstruation.

Breeding.—The normal ratio of male to female births is 106 to 100, but if the parents are near the same age the females may predominate, and if the wives are older the females considerably outnumber the males. When the husbands are much older the males may greatly exceed the females and this partly explains increased male births after wars. The first born child is more apt to be a male. The average period between date of marriage and first childbirth is seventeen months, and the normal space between labors, two years. The fertility of a woman under thirty is double that over thirty. The age of maximum fertility is twenty-two. The pelvis in woman is fully developed at the age of eighteen. Over-fertility and multiple gestation are always associated. A woman may bear as many as fifty children. After five years of sterile marriage the chance of offspring is about one in seventeen. Young adolescent males are fertile with older females and a boy of fifteen or sixteen is apt to impregnate a woman in the late twenties. Consanguine marriages occur in the ratio of about 2½ per cent. One-third of the offspring of consanguine marriages are normal. The older siblings of a family are the longer lived. The great majority of only children are deviates from normal, but this is not due to inheritance. The mortality of illegitimate children is double that of legitimate. The percentage of illegitimacy among white children in the United States is anywhere from 0.5 to 5 per cent., while in the negro population it may reach 22. Still births are twice as common among illegitimate births. The average age of the fathers of great men at the time of procreation is thirty-seven; of the mothers at conception, thirty. The average number of children in the families of great men is six.

Growth and Development.—During the first two months the infant merely vegetates and no pre-

cocious responses to tests should be included. About the eighth week it first blinks when startled. It has but three sensations at the outset—hunger, repletion, and pain. It reacts to all stimuli by suction movements. It expresses pleasure by wide open eyes, pain by tightly closed eyes.

A child is called newborn until the cord is shed, at the fourth or fifth day. Its weight at birth may be any weight up to twenty-five lbs. The anterior fontanelle increases in size up to the ninth month and closes at the eighteenth. The average placenta is seven inches in diameter and weighs a pound. The capacity of the stomach at birth is an ounce.

During the last month in utero the fetus gains 1,000 gms. The premature child has its eyes closed at birth. The mature child regains its initial loss of weight in a week, the premature's weight is not normal for a month. The cry of the newborn before birth is a displeasure reaction. Respiration is determined not from stimulation of the air but from the accumulated carbon dioxide of the blood. In the newborn the apex of the heart is outside the mamillary line.

Girls attain full stature at twenty, boys at twenty-one-twenty-two. During the nine months in utero the ovum increases its weight a million fold, but during the first twenty years of life the individual increases only sixteen fold. The infant doubles its weight at the twentieth week. The brain reaches its full development at the age of twelve. The boy from nine to twelve is more harmoniously developed than at any subsequent time.

The ages of normal puberty are ten to eighteen years, and only if earlier or later do we speak of precocious or retarded menstruation. Growing boys tend to strike the ankles together in walking and to develop high shoulder at clerical work, both being outgrown. The boy is best at climbing before puberty, although at the latter age the biceps enlarge. At the age of three weeks the infant shows for a time an unusual ability to hang by the arm.

Senescence and Death.—Senescence really begins at birth. The quantity of connective tissue in the body continues to increase from birth to old age and death. Senescence begins conventionally when a man is no longer able to support himself by his labor. The arcus senilis is a physiological phenomenon although it rejects for insurance. Age is shown by relaxation of the skin beneath the eyes, this being one of the most trustworthy evidences. Save in premature baldness grayness of hair precedes baldness. Senile kyphosis is emphasized by the weight of the heavy clothing necessary for cold weather. The senile man cannot rise on his toes because of the shrinking of the calf muscles and in consequence he shambles.

Death usually occurs with the eyes open. The dying are almost always unconscious. Those who have inhaled live steam apparently with impunity are apt to drop dead without warning. While rigor mortis is certain evidence of death it may sometimes occur before death (in some poisonings). It supervenes rapidly in death preceded by great exertion. The sooner it appears the longer it lasts and vice versa. In a very muscular subject it persists for a long time. It first appears in the muscles of the jaws and eyelids.

A blister on the foot in a holocaust shows that the subject was alive at the time of injury. The reaction of the tears changes after death from alkaline to neutral or acid. A few minims of ether or dionine solution instilled into the eye of the apparently dead may cause hyperemia, showing that life is still present. In death from suffocation the heart blood is fluid. In rare cases wounds inflicted after death may gape and bleed. In autopsy the brain must be opened before the thorax, otherwise the blood will escape into the latter. The death rate is high among widowers. The annual mortality of the whole world is 20 per 1,000 population. Nearly a third of all deaths occurs in those over sixty. Death in the first six days of life eliminates 36,000 unfit annually in the United States.

Identification.—Scars over the sacrum or heels point to past bedsores. All scars are useful for identification—vaccination, smallpox, hypodermic needle, and even chickenpox scars, which nearly everyone has. The duelling scars of German students made by the *schläger* are unmistakable. The scar of a superficial wound in the negro is darker than the surrounding skin, while if the wound is deep the scar is lighter. Bertillon measurements undergo no change after the age of twenty-one and hence are not usually taken before that age. Eye color practically never changes except in very young infants. Friction ridge patterns which serve for identification occur in the finger tips, palms, soles, and thenar eminences. Thin men have simulated fleshiness by puncturing the inside of the cheeks and forcing expired air into them, causing emphysema. A brogue or accent, usually useful in identification, may be outgrown with time. Peculiar phrases or oaths, as well as quick and slow speech, are of use in identification—also impediments in speech. The glance is difficult to change and hence of value—steady or fleeting, full or sidewise, etc. The finger prints of homologous twins are remarkably dissimilar (reversed) even when the Bertillon measurements correspond. In the palm of the white man there are forty-four different patterns, while in the negro palm there are but sixteen. Great toe prints present but two distinct patterns.

Physical Types of White Man.—Of many types described in the past but few have practical value. The "narrow-back" so called, or slender man (his stature is not essential), seldom increases his weight during life. His intestine is abnormally short, his spine long and flexible; in work he is in demand for his agility, in sport he excels in sprints and short efforts. The "narrow-back" woman bears children easily. The broad-back is the antithesis of the narrow-back in every way. The carnivorous type of man agrees in most respects with the narrow-back and the herbivorous with the broad-back—the herbivorous man, however, is not necessarily a vegetarian, but prefers starchy and fatty food.

Racial Types.—The negro is never prematurely gray, and gray or white wool means old age. The trunk of the negro is relatively shorter, as is the neck, and the extremities are long, the greater length of the upper extremities being in the forearm. The prominence of the negro heel distinguishes him from other dark peoples. The calf of the leg in the negro has no bulge, the lips are not thick but

everted, and the angles of the mouth are not as mobile as the white man's. The hair of the American Indian may attain a length of 36 inches. His nails are blueish and in the young the sclerotics are blue. The Indian child shows the Mongolian eyefold. The toes of the Indian are apt to be short and the bases of the second and third joined together. The hair has but slight tendency to gray.

Redundant and Defective Individuals.—Some apparent redundancies, like gigantism and twin birth, may be conceived also as defects; a defect like left-handedness or left-sidedness may be visualized as a redundancy as these subjects may readily become ambidextrous.

About 2 per cent. of mankind are left-handed and this peculiarity may run in families. There are also left-footed men who may be recognized by preferring the use of the left foot, as in spading. The left cerebral hemisphere is slightly heavier than the right and the viscera of the right half of the abdominal viscera are heavier than those of the left by nearly 1½ lbs., not counting the stomach contents.

Twins are born once in eighty or ninety labors; one-fourth of all twins and one-half of same sex twins are homologous. A giant is technically a man of 6 ft. 4½-in. stature—literally one man in a thousand. Exhibition giants must be at least 7 feet and several inches tall, while about twenty have measured over 8 feet.

Deafmutism.—The deafmute is not more irascible than the normal subject, whom he excels in courage and fortitude. His physique is in all other respects normal, but his breathing is peculiar from want of ear control; he is largely immune from spinning vertigo.

Stammerers.—The stammerer is usually a male, the ratio of male to female being seven to one; stammerers even stammer when whispering; the born deaf never stammer; stammering is a purely psychic defect and may run in families; the stammerer often has trouble in holding his breath; the vice seldom first appears after childhood; it is colloquial only, and often does not interfere with singing or speaking in the professional voice.

Color-Blind.—One man in twenty-five has some degree of red-green blindness; the latter is extremely rare in women. Quakers show more color blindness than the normal ratio. Color blindness may be acquired by those who habitually face a glare.

Albinos.—The albino is short lived; both pupil and fundal reflex are red; at night he sees without trouble; he may be recognized from afar by his peculiar carriage as he seeks to protect his eyes from the light.

Blind Subjects.—In total blindness the pupil does not contract on exposure to light; an eye long blind usually squints; there are more women than men who are blind in both eyes; the blind have no greater delicacy of touch than can be acquired by a seer, although they have a better faculty of interpretation; a blind person has an acquired instinct to protect his face; the second sight of old people is usually due to beginning cataract.

Bedfast Subjects.—The long bedridden become, by adaptation, a subvariety of mankind; they may develop corns on the ears from pressure on the pillow; with weight taken off the spine the latter increases in length, although not after the age of thirty; dropsy first appears over the sacrum; the bedfast may have much trouble in assuming the sitting posture which determines vertigo.

519 West 143d Street.

A BIOCHEMIC EXPLANATION OF THE SULPHUR MOLECULE.

By P. R. VESSIE, M.D.,

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Many attending physicians at health resorts, where "sulphur waters" are dispensed, concede that the sulphide contained therein shows definite reactionary powers in deep-seated diseases, whereas the popular remedy, *Calcium sulphide,* is regarded as decidedly antagonistic to pus-producing bacteria. No explanation, however, is advanced of its biochemic action in the human.* While sulphur is recognized as an ancient disinfectant and a traditional "blood-purifier" in the spring-time, it is destined to a great advance as soon as its action is known and understood by the coming school of biochemists. It is one of the chief elements used in the arts, industry, warfare, and medicinals, and is indeed a source of inspiration to creative chemistry. At any rate, the discussion of sulphur needs no profuse apology because it is one of the basic elements which constitute physical life.

The Destiny of Sulphur-Bearing Food.—In our diet sulphur is present as an inorganic sulphate and also as organic sulphur, found principally in protein and fatty food. After being acted upon by the gastrointestinal ferments this food is sulphurized into a definite amino-acid, "cystin." † While not in a free state in the organism it is distributed in the protein molecule in chemical combination, and when it is given experimentally a large amount of urea is excreted. This implies an increase of general metabolism and accounts for its value in hastening elimination of toxins. Sulphur is oxidized by the inspired oxygen to form nascent sulphuric acid which would upset the metabolism of the system if it did not combine with the carbonates of sodium and potassium,‡ resulting in a daily elimination of 15 to 45 grains of sulphates.

The Effect of Bacteria of the Sulphoprotein.—As to the chemistry and physiology of bacterial life, Wheeler[1] made the definite discovery of sulphur in the cellular substance of bacteria. Bacteria are stimulated to prolific growth on a culture containing colloidal sulphur. Jejunow[2] found that they digest the sulphur contained in organic bodies. This means that they oxidize the sulphur of the human cell which they then utilize for self-sustenance. In this process our sulphur is reduced to hydrogen sulphide. This sulphide is then oxidized to sulphuric acid, the vital source of bacterial energy.

*With the exception of the mention that it is altered in the stomach into hydrogen sulphide, entering the circulation to form sulphuric acid.

†This synthetic sulphur compound is oxidized and then excreted, principally in the urine; in part as an aromatic sulphate and in combination with sodium, potassium, and magnesium. Sulphur oxidation is decreased in carcinoma.

‡A large proportion of potassium is found in the blood corpuscles.

The carbonates of sodium and potassium in the body neutralize fractions of this sulphuric acid, causing a sulphate to be formed and eliminated as such.[2] W. Smith[3] concludes that chemical reducing agents are common to all bacteria.

Oxidized Sulphur Neutralizes Bacterial Toxins.—Two of the well-known toxins of bacteria, indol and phenol, are acted upon by certain agents, causing less harmful products to be formed through neutralization. The following illustration shows the steps in the neutralization of indol:[3]

1.—Digestive ferments break down proteid food, producing amino-acids (simple compounds), many of which are synthesized into groups and rebuilt into protein, to replace wornout molecules of cells.

2.—The ferments of pathogenic bacteria attack these amino-acids, for example, tryptophane, and liberate:

3.—Indol (an aromatic toxic compound) which is oxidized to indoxyl. Fractions of this product are absorbed into the blood and are detoxicated by:

4.—Sulphuric acid, derived from the breaking down of "cystin" in the liver to form aromatic sulphates by the addition of potassium, constituting indoxyl potassium sulphate (indican*).

A BIOCHEMIC THEORY.

I.

Sulphur in the diet is sulphurized into an amino-acid, "cystin."

Cystin is a synthetic sulphur compound which constitutes one of the necessary molecules in the living body cell—protein sulphur.

Protein-sulphur serves the purpose of a life-giving force, and after it becomes oxidized it breaks down in the liver to form sulphuric acid.

In that organ sulphuric acid combines with the sodium and potassium of carbonates to form the end-products, sodium and potassium sulphate. Thus:

Food *Sulphur*
|
Amino-acid, *"cystin"*
|
Protein sulphur molecule
|
Sulphuric acid
|
Sodium and potassium *sulphate*

II.

The ferments of bacteria split up the protein molecule in the living cell to form hydrogen sulphide.

The hydrogen sulphide is oxidized to sulphurous acid.

By the addition of more oxygen sulphuric acid is produced.

This sulphuric acid is the vital source of energy to the bacteria.

By the addition of the sodium and potassium of the body neutralization takes place to form the end product, sodium and potassium sulphate. Thus:

Protein *sulphur* molecule
|
Hydrogen *sulphide*
|
Sulphurous acid
|
Sulphuric acid
|
Sodium and potassium *sulphate*

III.

Fractions of the toxic compounds, liberated by the bacteria in the blood, are neutralized by combining with sulphuric acid produced by decomposition of the sulphur molecule of the body cell. Complete conjugation takes place with potassium to form an end-sulphate, which is eliminated. Thus certain bacteria attack "tryptophane," an amino-acid, to form a less poisonous compound, as follows:

*The same chemical conjugation takes place in the case of phenol potassium sulphate which is made from tyroxin, an amino acid.

Tryptophane
|
Indol (toxic compound)
|
Oxidized to indoxyl
|
Indoxyl + Sulphuric acid + Potassium
|
Indoxyl potassium sulphate (Indican)

IV.

The action of calcium sulphide, a popular remedy, which shows unquestionable results in systemic infections, may be explained by referring to the successive steps in the decomposition of poisonous products of bacteria into a less inert compound.

Hydrogen sulphide is liberated from calcium sulphide* in the stomach by hydrochloric acid, absorbed as such into the blood, then oxidized into *sulphurous acid*, then by the addition of more oxygen, into *sulphuric acid;* then fractions of this product combine in the liver with the basic poisons (indol, skatol, cresol, phenol, etc.) and by the addition of potassium forms the end sulphate which is eliminated. Thus:

Calcium sulphide
|
Hydrosulphuric acid (hydrogen sulphide)
|
Sulphurous acid
|
Sulphuric acid
|
Sulphuric acid + toxic compound (indoxyl) + potassium
|
Indoxyl potassium sulphate

Conclusions.—A concentration of calcium sulphide heightens the chemical functions of the protein molecules so as to reduce the militant activity of bacteria.

Calcium sulphide also serves to neutralize toxins of bacteria by a stated chemical conjugation.

The so-called protective antibodies formed in the blood after the administration of sulphur are probably sulpho-protein bodies, since antibodies are admittedly complex chemicals.

REFERENCES.

1. Vaughan: Poisonous Proteins, p. 24.
2. Vaughan: Protein Split Products, p. 63.
3. MacLeod: Physiology and Biochemistry in Modern Medicine, p. 665.

A SUCCESSFUL SKIN GRAFT WITH A SLIGHT MODIFICATION OF THE REVERDIN METHOD.

BY FRANK WEHLE, M.D.,
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F. F., age twenty-four, an employee of the General Baking Company, while at work suffered a severe laceration of the left last digit, caused by cog wheels of a cracker machine. The damage was considerable, the skin was irregularly torn, muscles and tendons were lacerated, the nerves were torn, the bone crushed. The injury extended over two-thirds of the entire finger, involving the anterior, posterior, and external surfaces. Inflammatory phenomena supervened; however, in three weeks there was a fairly healthy granulation surface, but with a considerable amount of discharge. Notwithstanding this, a Reverdin was made with modifications in the following way at the Buffalo General Hospital.

Method.—The outer side of the patient's right thigh was shaved and rendered sterile, and an area of about ten square c.m. was anesthetized with ½ per cent. novocaine. A small portion of the cutaneous tissue was

*The calcium not only acts as a carrier for the sulphide, but aids blood-cell function. It also remineralizes the deficient calcium molecules which form the foundation for all cells.

picked up with a long darning needle and removed with a sharp thin-blade scalpel. It included the cuticle and a portion of the cutis vera. The grafts were then placed cutis downward on the granulations in rows transversely. They were then held in place by means of horse hair tied around the finger like a ring; where the horse hair came in contact with the graft on the cutaneous surface a minute drop of white shellac was put to insure greater immobility of the little pieces of skin. There were several grafts laid on the surface of the wound which were not held in place by horse hair, but were held in place with a drop of shellac placed partly on the edge of the graft and partly on the granulation. The dressing consisted of a bridge arrangement so that none of the bandages came into contact with the grafts.

Post-Operative Treatment.—The operation was done on December 19 and completed at 1 P. M. At 3.30 P. M. the surface of the wound was irrigated with 500 c.c. of saline solution. On December 20 the wound was again irrigated q. 4 h. with normal saline. On December 21 the wound was irrigated at 10.30 A. M. and at 8.30 P. M. with the same solution. The horse hair was removed on that date and all the grafts under the horse hair were found to be well anchored. On December 22 it was irrigated with saline again at 7 A. M. and 11 A. M. After this hot applications were applied for two hours, and the patient was allowed to go to his home. On December 23 to 28 the only dressing was sterile vaseline and bandages.

Result.—On December 29 the wound was almost entirely covered with epithelium. Of thirty-five grafts thirty "took." All those held in place by the horse hair grew. It was found that the shellac on those not held in place with horse hair was of assistance in keeping the grafts in place. On January 6 the wound was entirely healed.

Conclusions—This report is published in order to stimulate interest in this procedure. Due to the nature of the writer's present work a series of these cases would be impossible. This, therefore, is in the nature of a suggestion for those who have a number of skin graft cases. It seems permissible though to conclude from this case that this method insures closer adhesion, obliterates dead space, and permits the removal of the discharge with irrigation. It is perhaps more applicable for grafts on the fingers, arms, legs, and feet than the other parts of the body where it would not be feasible to tie a ring of horse hair. There also seems to be some potentiality in the use of shellac for this purpose.

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Medicolegal Notes.

Use of Text-Book on Cross-Examination Opens Door for Question on Redirect Examination.—In a prosecution for murder, the defendant assigned as error that, on redirect examination the trial court permitted a medical witness to answer the question of counsel for the state as to whether or not he agreed with the statement of the author of a text-book from which counsel for the state was reading. The question arose in this manner: The witness was the physician who performed the autopsy upon the body of the deceased. On direct examination he had merely described the condition of the body, the course of the bullet, the wound and its appearance. The defendant's counsel on cross-examination produced a medical text-book, read from it, and asked the witness if he agreed with the statement of the author upon the effect produced by hard-nosed bullets, and if a soft-nosed bullet would not mushroom as soon as it struck tissue. To this the witness answered that his understanding was that it might mushroom from a bullet shape into a mass, possibly the shape of a nickel or a quarter, but that he was not familiar enough with the subject to express an opinion. Upon redirect examination, counsel for the state read the rest of the statement upon the subject, and asked the witness if he agreed with the entire statement of the author. The Montana Supreme Court, citing the rule that medical books may be referred to on cross-examination to discredit the testimony of experts who refer to them as authority for, or in support of, their opinions, and for the purpose of testing their knowledge of the subject upon which they give opinions, holds that counsel, by inviting the doctor's opinion upon the effect of different bullets upon human flesh, and using a text-book for the purpose of discrediting him (as he had a right to do), opened the door for counsel for the state to fortify the doctor's opinion by calling his attention to the whole statement for the opposite purpose. The assignment was therefore held without merit.—State v. Ross (Mont.) 199 Pac. 426.

Question of Employment of Physician by Corporation.—Action was brought by a physician against an industrial company for recovery of reasonable compensation for operations performed on employees of the defendant under the following circumstances. The defendant maintained a medical staff for the treatment of its injured employees at various points of its activities, the plaintiff being the "company physician" at Vanderbilt, Alabama, one of these points, and another physician being physician at Dolomite. The employees in question were injured at Dolomite, and treated by the company physician at that point before they were transferred to Birmingham and came under the treatment of the plaintiff. The defendant's contention that Dr. Dabney, the plaintiff, was required by the terms of his employment to operate on or treat patients as the occasion required, whether they received injuries at Vanderbilt or elsewhere, was denied by the plaintiff, who insisted that his contract of employment with the defendant required that he give medical or surgical attention only to those employees working at Vanderbilt, and from whom the company collected a designated sum of money to pay for "medical services" required or desired by such employees.

The Alabama Supreme Court stated the law governing the case to be that, in the absence of an express contract, where valuable services are rendered by one person to another, which are knowingly accepted, the law assumes and implies an obligation to pay for such services what they are reasonably worth. This rule is applicable if the person for whom the work is done is informed that he is being looked to for payment and under such conditions and knowledge receives the benefit; but "in the absence of such knowledge or conditions, it cannot be said that a defendant knowingly accepted work done for him, and for which he must make a reasonable compensation." It was held that, in the present case, the question of whether the plaintiff's contract of employment required him to give medical attention only to employees working in the city in which the plaintiff was located, or whether it covered services in the treatment of employees injured in plants located at other points, was a question for the jury. The question of whether the corporation accepted such services knowing that the plaintiff looked to it for payment, so as to estop it from denying liability for services, was also held to be a question for the jury. Testimony as to the custom relating to the treatment of employees from plants located at other points was held competent and relevant.

Judgment for the plaintiff was affirmed.—Woodward Iron Co. v. Dabney, Alabama Supreme Court, 88 So. 873.

Compulsory Vaccination of Scholars.—The Pennsylvania Superior Court holds that a school district is reasonably embraced within the term "municipality," and as such is within the Act of June 18, 1895, P. L. 203, requiring compulsory vaccination for the public health "in the several municipalities" of the Commonwealth. It is also held that a conviction of a viola of section 1414 of the Act of May 18, 1911 (School Code), P. L. 383, providing for compulsory attendance at school, will be sustained where it appeared that the defendant had refused to allow his son to be vaccinated, and, in consequence, had rendered him ineligible for attendance at schools. In such a case, it was irrelevant to inquire into the effect upon the defendant himself of a particular vaccination or on the effect of vaccinations on other persons.—Commonwealth v. Butler, 76 Pa. Superior Ct., 113.

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RECENT DEVELOPMENTS IN OUR KNOWLEDGE OF ECLAMPSIA.

SYNTHETIC reviews of this subject, from time to time, do not appear to show that any undoubted progress is being made in our knowledge of the nature and treatment of eclampsia. The experience of the last war had been expected to teach something and the earliest reports seemed to show that the reduced rations of the Germans greatly diminished the incidence of eclampsia and pointed to dietetic causes and control. Later information showed that this diminished incidence was in spots only. Today it is said that the combination of physical fatigue and mental anguish caused a decided increase in the number of cases among women employed in the factories. In great cities like Berlin and Munich the notable increase was attributed in part to psychophysical overstrain and in part to insufficient diet, factors which are seldom thought of in peace times. In the rural districts where the robust and hardy women were not overworked and where food was more abundant eclampsia showed no increase over peace times. In 1919 the statistics of Germany show a figure which approximates that of 1914, although in 1919 food was still scarce. In other words, to quote Gessner in the *Zentralblatt für Gynecologie* for December, 1921, xlv, 50, intensive physical toil of the munition factories and moral anguish are the most salient contributory factors in the increase in the number of cases.

In the same journal Hofbauer offers a theory of the nature of the disease which differs from those of other recent writers. For while both views accuse anemia of the brain as the motive of the convulsions, Hofbauer does not impute this to increased intracranial tension and edema but simply to angiospasm due in turn to excessive production of pituitin and adrenalin in the organism. We know that the hypophysis is enlarged during gestation but this overproduction of the two hormones is imputed to the entrance of toxic products from the fetal into the maternal circulation. This blood state might be antagonized by the detoxicating action of the hormone of the lutein cells, which lower the increased blood pressure caused by the adrenalin-pituitrin excess in the blood, were not the function of the ovary more or less suspended during gravidity. Hofbauer would therefore give lutein extract as a prophylactic of eclampsia, combined with thyroidin. Venesection at an early date is another indicated resource. Liepmann in the same journal gives the results of 19 years study of eclampsia along a certain line. He accuses the placenta instead of the fetus and asserts that it secretes a hormone resembling pancreatin. It resides and acts within the placental cells and the products of its digestive action are toxic to the mother. Hence there can be but a single grand indication, to remove the placenta as quickly as possible by emptying the uterus, at the same time practising venesection and if necessary transfusion.

Lichtenstein, writing from the merely practical aspect, still advocates a copious venesection repeated once or twice if necessary and taking a pint of blood at a time. This will lower the blood pressure, aid in detoxication, and allow a freer circulation with more oxygen in the blood. Such treatment must be begun with the first convulsion. The balance of the management is sedative—opiates, chloral, etc. The author has been using this management since 1911, and his figures surpass those of the ordinary method of emptying the uterus. This idea was first carried out on a large scale in Russia and with marked success.

THE CLINICAL ASPECTS OF CANCER OF THE HEPATIC DUCT.

PRIMARY cancer of the hepatic duct is essentially characterized by chronic jaundice with slow development, to which symptoms of cachexia and progressive weakness become added, ending in death within a few months, the average being about nine months. The onset of the process is frequently marked by icterus, but previous to its occurrence the patient will have complained of loss of strength. Or the patient may suffer from anorexia, headache, slight abdominal pain, and some diarrhea before the jaundice appears. The jaundice is intensely dark and remains so throughout. The skin and mucosæ are alike involved. In some few cases the icterus may decrease towards the end, or remissions and successive exacerbations in the intensity of the jaundice may occur. Pruritus occurring with the jaundice is considerable and may acquire an extreme acuity, almost intolerable. In most recorded cases the stools were decolorized, an important sign of occlusion of the hepatic duct. The urine usually contains large quantities of bile pigments, but Houssin has met with a case in which the urine was very dark but without any trace of foreign coloring matter, sugar, or albumin, and very poor in urea. The percentage of urea may drop to a low point and in some cases an alimentary glycosuria, absent at the outset of the affection, may develop toward the end. Oliguria or even anuria may occur at the end.

Spontaneous pain in cancer of the hepatic duct is apt to be absent. On the other hand, sensitiveness to pressure over the liver is usually distinct. The continual pruritus is, however, a cause of in-

somnia and intolerable distress. Anorexia is a common symptom; disgust for fats is much more marked than for other articles of diet, although, strange to say, the appetite is preserved. Vomiting, nausea, and gastralgic pains have been observed in some cases. The blood contains bile pigment which is eliminated by the kidneys, and toward the end of the process the hemoglobin may be as low as 15 per cent. with one leucocyte for every one hundred red blood corpuscles in the count. There may be a slight poikilocytosis, but leucocytosis, as in other cases of cancer, is the rule and when infection is added there is a polynuclear leucocytosis. Examination of the liver during life will give some important data. Usually there is some hypertrophy, occasionally so considerable that it is evident by inspection. In other cases the liver extends below the costal margin to the extent of one to several fingers' breadth, but its surface is always smooth and frequently hard. Sometimes it is completely painless on pressure, at others slightly so, but it can be very sensitive. The liver rarely decreases in size during the evolution of the process, but this has been known to occur. The gall bladder cannot usually be palpated, but occasionally is distended when it can be felt under the edge of the liver like a tumor. The spleen is sometimes enlarged but ascites is most uncommon, although in certain cases there may be more or less fluid in the peritoneal cavity with edema of the lower limbs.

As in malignant disease of other viscera, cachexia is the essential cause of death. The cachexia opens the door to secondary infections or an inflammatory process may develop behind the site of the occlusion in the duct. Infection is almost always a principal factor in the genesis of the terminal accidents of the process. This infection may involve other organs than the liver and cause death before this organ has become seriously involved by the malignant process. Thus, these patients may die of pneumonia. The final picture is ordinarily that of hepatic insufficiency, the icterus with or without the elevation of temperature, brings about the fatal issue. Gastrointestinal, pericardial, cerebral, or retinal hemorrhages not infrequently occur, denoting a profound change of the blood and vessels. Death may take place in coma.

IMPERFECTIONS OF THE HUMAN BODY.

It may be remembered by some of our readers that many years ago a clergyman wrote an article under a nom de plume in which he pretended to criticise the Deity for faulty construction of the body. The article was really a satire on certain sporadic efforts by anatomists at pointing out faulty mechanisms in the animal organisms. One, perhaps Helmholtz, had criticised the eye as a defective piece of optical apparatus. The joke lay in the fact that the would-be satirist was understood literally by many of his readers and soundly rated for impiety. Hence one must be a little cautious when confronted by an article of this scope. This perhaps should be true particularly of an article in a Spanish source, for in Spain there has been no struggle worth mentioning between religious authority and science. Nevertheless in *El Siglo Médico* for February 18, 1922, lxix., 3558, we find an article by Dr. D. Amalio Gimeno y Cabanas with the title above mentioned. This gentleman is also spoken of as Professor Gimeno and the Count de Gimeno. The address was delivered January 29, 1922, before the Royal Academy of Exact, Physical, and Natural Sciences.

Dr. Marco, who reports this lecture for the readers of *El Siglo*, speaks of it, as well as of the orator, in the highest terms. He recalls an alleged saying of King Alfonso the Wise (Alfonso X) of Castile, made before a joint body of Christions, Jews, and Musselmans, that if the Deity had consulted him before having created the Universe he would have made suggestions which would have led to a better piece of work. Much more modest was a certain American physician, whose name unfortunately is not supplied, who, had he been consulted, would have left out the tonsils from the human body. It is evident that statements of this sort intend no irreverence, but only express in a whimsical manner our ignorance of the purpose of certain organs.

The orator is said to have enumerated many examples of imperfections from the somatic angle but such imperfection does not extend to the psychic functions. One might say that the superiority of the latter is necessary to offset these new physical defects, which statement is in harmony with the dogmas of evolution. He criticizes the diaphragm, the ureter, the cystic duct, the entire anterior abdominal wall, the too-easy communication between the vessels without and those within the cranium, the teeth, so fragile in respect to caries, the tonsils and Waldeyer's ring in general, the functional disharmonies of the gastroenteric tract, the poor drainage which attaches to the emptied gravid uterus, and so on through the whole domain of pathology, whenever some apparent anatomical shortcoming makes possible the development of some disease. Apparently he denies the supposed benefits and conservative functions of pain. Nevertheless all of the shortcomings which can be enumerated have a definite role in creation; for in seeking to overcome them, man has been forced to develop his brain and if he is to become a superman, it will be because he will continue to develop his brain in the same manner.

It seems a strange contradiction that in orthodox and religious Spain a representative scientist can thus address a representative body of his learned countrymen while in the wicked United States, Mr. Bryan is working in the exactly opposite direction, endeavoring to place medieval fetters on scientific men who harbor any doubts regarding the mosaic account of creation, and to compel them to silence on all subjects which have even the remotest suggestion of agnosticism.

SURGICAL OBLITERATION OF THE LACRYMAL TRACT IN CERTAIN OCULAR AFFECTIONS.

DESTRUCTION of the lacrymal sac has been practised in all ages, but usually quite unintentionally. To Angelo Nannoni, in the XVIII century, the credit is due for having deliberately resorted to obliteration of the lacrymal tract for therapeutic purposes. After having been greatly in favor toward the middle of the last century it is now being replaced by methodical removal of the lacrymal sac. The latter operation was first performed by Berlin, in 1868, and is at present generally accepted in Europe. Of the various methods employed for obtaining surgical obliteration of the lacrymal tract, destruction and extirpation of the sac are the only operations of use because they alone permit the complete obliteration of the diseased structures. In performing extirpation the skin incision should be curved and from two to three centimeters long, the convexity being internal to and distant from the inner canthus of the eye for at least five millimeters. The incision should include the internal palpebral ligament and beginning a little above it; the sac is carefully dissected out and removed entire. The upper part of the lacrymonasal duct should be cauterized with the thermocautery and a compressive dressing applied which is left in place for several days. Destruction of the lacrymal sac does not differ from extirpation other than that the greater part of the sac is destroyed *in situ* with the thermocautery, an acorn point being used. The wound is merely covered with sterile gauze and allowed to granulate. The dressings are an important factor in the successful result of the treatment and a great deal of care and attention must be given them.

Recurrences of the affection are ordinarily due to an incomplete operation, but they may be caused by ascending infection along the lacrymal duct in cases where some nasal affection coexists; or they may result from filtration of the tears into the wound, hence the necessity of cauterizing the nasal duct and obliterating the lacrymal canaliculus. A cure of lacrymal affections treated by the method of obliteration is rapidly procured. Lacrymation always ceases as numerous cases prove. Ablation of the lacrymal tract would seem to bring about by reflex action histological changes which have as a result the drying up of the glandular secretion.

Generally speaking, the majority of cases of chronic dacryocystitis, with or without fistula, should be dealt with by extirpation of the sac, and the same may be said of mucocele, ectasis of the sac, dacryocystitis complicated by serpiginous ulcer of the cornea, dacryocystitis involving eyes which are to be operated on for cataract or iridectomy, and simply epiphora without lesions of the lacrymal tract. The chronic dacryocystitides which assume the form of chronic pericystitis, and those which frequently show acute inflammatory phenomena or which are accompanied by osteoperiostitis of the unguis or ethmoid should be treated by destruction of the lacrymal sac, and this procedure is the only proper way of dealing with tuberculosis of the lacrymal tract.

AUTOOXIDATION AND ANTIOXIDATION.

WHILE oxidases and reductases are familiarly spoken of in biochemistry, such enzymes seldom figure in any kind of practical effort, and in connection with a certain new field of experiment are not mentioned by name at all. Instead of this, Moureu and Dufraisse speak of processes such as autooxidation, which may be arrested by very minute quantities of certain chemicals. The authors read their announcement at a recent session of the Société de Biologie (*La Presse Médicale*, February 8, 1922, xxx, 11), and suggest as a name for the inhibiting substances "antioxygens." The most active in this direction are certain phenols as pyrocatechine, hydroquinone, and pyrogallol. Ordinary phenol and resorcin possess this power only to a slight extent. Among autooxidizable substances are acetic aldehyde, benzoic aldehyde, furfurol, etc. To take one of these at random, acrylic aldehyde (acrolein) may be prevented from self-oxidation by 1-20,000 part of hydroquinone. Otherwise stated one molecule of the latter can protect 40,000 molecules of acrolein. A single gram of hydroquinone can retard the oxidation of a metric ton of ordinary aldehyde. With addition of this sort, furfurol no longer turns black, acrolein does not become turbid, and styrolin no longer thickens. Fats do not become rancid. This discovery may be of no benefit in medicine because we do not as a rule wish to prevent oxidations in the body but rather to stimulate them. However there may be conditions of hyperthermia in which some of these phenols may exert a salutary action. One wonders whether the value of the Baccelli carbolic acid treatment of tetanus could be in any way due to antagonizing the hyperoxidation. The power of phenol derivatives of various kinds to depress the temperature may also be thought of in this connection.

HEPATIC INSUFFICIENCY AND PUERPERAL INFECTION.

A SCORE of years ago, when the new doctrine of an all-comprehending toxemia of pregnancy was making its first converts, the opinion was ventured that this same basic state might be made to account for much of the incidence of puerperal sepsis, especially in the absence of definite exogenous factors. In the *Schweizerische medizinische Wochenschrift* for February 16, 1922, lii, 7, Bourcart of Geneva advances a view which is coterminous with the preceding. He starts with the assumption that the hepatic cell is a sort of fixed leucocyte, the prime duty of which is organic defense. When the latter becomes insufficient for its daily functions a protein meal is enough to cause a slight hemoclastic shock, which therefore becomes the most sensitive test for hepatic insufficiency. Yet in a way hepatic insufficiency can only mean an insufficiency of the entire organism, with especial emphasis on circulatory insufficiency. Defect in the general circulation means defect in the hepatic circulation. In passing, the author dwells on the effects of massage of the liver in reestablishing its partly suppressed function. This resource, including the use of the electric vibrator, he regards

as more simple and safer than the injection of colloidal metals and nonspecific protein. In connection with puerperal sepsis, which he regards as determined largely by hepatic insufficiency, of which acidosis is a leading manifestation, he announces that his hepatic massage can actually bring down to normal a temperature of 104° F., and can cause the disappearance of the various symptoms comprised under acidosis. The author has been at work along these lines for many years and it might be well if more members of the profession made the same kind of effort in the direction of the simple and obvious, instead of rushing into novel and possibly dangerous forms of medication on all occasions.

News of the Week.

State Charities to Observe Semicentennial.—The secretary of the Charities' Aid Association of New York State announces that the association will observe its fiftieth anniversary with events distributed over several months and over many parts of the State during the current year. A meeting will be held in the Town Hall on May 11, the fiftieth anniversary of the day when Miss Louise A. Le Schuyler, great-granddaughter of Alexander Hamilton, founded the organization to ameloriate the evils of the county almshouses of those days. The association was instrumental in having the State take over the care of the insane in 1890, and in 1907 the association began a campaign against tuberculosis in the State outside of New York City. The association is an unofficial body. It has 1,200 members in the State, seventy-six visitors to institutions, and several hundred visitors to almshouses and public hospitals.

Annual Meeting of Board of Trustees of Mt. Sinai Hospital.—At this meeting, held on March 19, gifts totalling $150,000, in addition to one previously announced of $150,000 from Adolph Lewisohn, were announced. The meeting was held in the new auditorium of the hospital. The chief address was made by Dr. Lewellys F. Barker of Johns Hopkins Hospital, who urged making New York the leading center of graduate medical instruction. The annual report showed that more than 187,000 persons were treated in Mt. Sinai dispensaries during the past year, while 9,667 persons were cared for in the general hospital. The daily per capita cost of patients in 1921 was $6.53 to the hospital.

Armenia Threatened With Blindness.—According to a despatch from Dr. R. T. Uhls of Kansas City, who is head of the medical department of the Near East Relief, there is an epidemic of trachoma raging throughout Armenia. Examination of 30,000 refugees revealed the fact that 27,000, or 90 per cent., were in the first stages of the disease. If the proportion holds good in all parts of Armenia, Dr. Uhls says, the situation is one of the most serious with which any nation was ever confronted. Only an extensive medical campaign can save the country from becoming a nation of blind.

Red Cross Will Move From Geneva to Paris.—The League of Red Cross Societies has decided to move its headquarters from Geneva to Paris. This step is taken in order to reduce expenses $15,000 yearly. At the time this decision was made, the League unanimously adopted the principle that all nations be allowed to join, after the French delegate had declared France no longer opposed the entrance of Germany.

Genoa Conference to Consider Prevention of Disease.—The Genoa conference will be asked to take up the task of preventing the spread of contagion from Russia into central and western Europe, in pursuance of a resolution adopted by the Council of the League of Nations. A partial report received by the Council from the hygienic conference in session at Warsaw depicts the situation as of the gravest character. The report states that 20,000,000 cases of typhus, cholera, and other contagious diseases have occurred in Russia during the past two years.

New Regulations to Restrict Liquor Blanks.—New regulations further limiting the use of liquor prescriptions by physicians are said to be in preparation by the Treasury. It is said they will accord with the Willis-Campbell bill prohibiting beer as a medicine and limiting the alcohol which may be prescribed to one-half pint in ten days and the number of prescriptions allowed to a physician to 100 in three months. The Treasury is understood to be considering a change in the definition of a liquor prescription to extend that classification to cover prescriptions issued for medical compounds of which alcohol is an ingredient as well as a prescription for a regular alcoholic liquor.

Supreme Court Ruling on Narcotic Dosage.—Two decisions bearing on the enforcement of the Harrison antinarcotic act were handed down by the Supreme Court on March 27. In one the court held in effect that a physician is prohibited under the act from prescribing narcotics to drug addicts in exceptionally large doses. The ruling in the second case declared that in prosecutions under the act it is not necessary for the Government to charge in the indictment that those selling the drugs "knowingly" violated the law. Both cases reached the court from New York. In the second case the District Court in New York had quashed the indictment because the word "knowingly" had not been used.

Additional Appropriations for Soldier Hospitals.—An appropriation of $17,000,000 to give additional hospital facilities for war veterans was authorized by a bill passed by the House of Representatives on March 31. The bill would put the Director of the Veterans' Bureau in charge of all activities resulting from passage of the measure, including the selection of sites and plans for new buildings and for remodeling existing structures.

Numerous Hiccough Cases Puzzle Doctors.—Physicians of Williamsport, Pa., are said to be puzzled over the large number of severe cases of hiccoughs existing at the present time and occurring since the first of the year in and about Williamsport, Pa. No cause has been assigned for the prevalence of this affection and no other city in the State is troubled to the extent observed in this locality.

City-Wide Clinics for Industrial Workers.—A movement has been started in Philadelphia to secure good medical clinics for all workers in the city of Philadelphia. Representatives of four leading or-

ganizations interested in industrial, medical and surgical conditions recently met with a sub-committee of the Industrial Relations Committee of the Philadelphia Chamber of Commerce to work out the practical details of a plan whereby all employees of the industries in that city shall have the same attention in case of injury or illness which is now possible in some establishments where they maintain first class clinics. It is planned to work out a model clinic to handle 10,000 workers, which would be situated in one of the closely built industrial zones of the city. It is believed that with the city properly zoned and with model medical and surgical clinics great sums now spent for compensation would be saved, and, what is more important, many lives will be saved and much invalidism avoided.

Pay Clinic Scored By Doctors.—On the evening of March 29, a joint meeting of the Eastern Medical Society, the New York Physicians Association, the Yorkville Medical Society, and the Harlem Medical Society was held under the Auspices of the Medical Society of the County of New York, for the purpose of discussing "The Pay Clinic from the Medical, the Public and the Economic Standpoints." A report of the combined committees of these societies was presented. The meeting was the result of the establishment of the Cornell Pay Clinic opened November 1, 1921, under the auspices of Cornell University Medical College. Dr. Walter L. Niles and Dr. Michael M. Davis defended the clinic, while Dr. Louis I. Harris and Dr. Henry W. Berg condemned the pay clinic as a socialistic scheme which pauperized both the patient and the doctor. The Attorney-General of the State has given the opinion that the Cornell University Medical College Dispensary is a dispensary within the meaning of Section 290 of the State Charities Law and is properly licensed by that Board.

Hay Fever Pay Clinic.—A special pay clinic for hay fever and asthma was opened at the New York Hospital on March 27. The clinic will be open on Tuesday and Thursday afternoons between 5 and 7 o'clock. It is said the charge will be $20 for from twelve to fifteen treatments.

Medicines to Help Russia.—Surplus medicines, medical, surgical and hospital supplies held by the War, Navy and Treasury departments and the Shipping Board will be made available for the Russian relief under an executive order issued by President Harding. The order is in accordance with the resolution recently adopted by Congress. The supplies will be delivered to the American Relief Administration within four months from the date Congress passed its resolution, January 20, 1922, and will not exceed $4,000,000 in original cost to the Government. The Relief Association is authorized to make the distribution of the materials.

Rabies Appears in New Jersey.—A rabid dog recently bit two children in Lyndhurst, N. J., one of whom died of hydrophobia and the other is taking the Pasteur treatment. A posse has been organized which is killing all stray dogs in that locality.

Damage Suit for Failure to Use "Dr."—Dr. J. J. Durrett, superintendent of health for the city of Memphis and a member of the medical faculty of the University of Tennessee is reported to have a suit in the circuit court, asking $100,000 damages from the president of a nationally known chain of grocery stores. The plaintiff alleges that in a series of political advertisements he was referred to as "Mr." Durrett, and that such reference was a studied effort on the part of the defendant to convey the meaning that the plaintiff was not skilled or learned in his profession and not entitled to hold a position requiring a reasonable amount of knowledge and skill.

Hospital Notes.—The Volunteer Hospital of New York has been saved from closing its doors by a group of business men who have prevented its sale to satisfy a judgment of $65,000 authorized by the Supreme Court. The hospital also has debts amounting to between $300,000 and $400,000, but with reorganization and new capital it is thought these can be readjusted. The Volunteers of America will sever all connection with the institution, and with the reorganization of the hospital its name will probably be changed to the Beekman Street Hospital.

Purchase of a site of nine acres at Walkerville, Mich., for a general hospital to serve all the Canadian border municipalities was recently recommended by the Essex Border Utilities Commission. It is proposed to first build an isolation hospital.

Ground was broken for the new Reconstruction Hospital to be built at the southwest corner of Central Park and 100th Street, New York City, on April 1. The first spadeful of earth was turned by Dr. W. Gilman Thompson, who has been largely instrumental in fostering the work of the Reconstruction Hospital. The new building will cost approximately $1,500,000 and will provide space for 175 beds. It will be supplied with every equipment embodying the latest principles of rehabilitation.

Sims Operating Theater of the Woman's Hospital.—A handsome bronze memorial tablet dedicated to J. Marion Sims has been erected in the newly remodeled operating theater of the Woman's Hospital. The inscription on the tablet reads: "Sims Operating Theater dedicated to the memory of James Marion Sims, M.D., LLD., 1813-1883. The Founder of the Woman's Hospital and of Modern Gynecology." The remodeling of the operating theater and the placing of the memorial tablet were made possible through the generosity of Mrs. Frederick Ferris Thompson.

Dr. Albert M. Wehenkel has been appointed medical superintendent of the American Legion Hospital at Battle Creek, Mich. He has named Dr. Wilfred Haughey as chief of the Advisory staff. Other members of the staff are Dr. R. C. Stone, Dr. R. D. Sleight and Dr. George F. Inch.

Charitable Gifts and Bequests.—The will of Mrs. Julia Seligman of New York makes the following bequests: Mount Sinai Hospital, $25,000; New York Post-Graduate Hospital, $25,000; $5,000 each to the Hebrew Orphan Asylum, United Hebrew Charities, Hebrew Sheltering Guardian Society, Tribune Fresh Air Fund; $3,000 to St. John's Guild, $2,500 each to the Hospital for Deformities and Joint Diseases, New York Society for the Relief of Ruptured and Crippled, Manhattan Eye, Ear and Throat Hospital, New York City Home for Destitute Blind, Bellevue Hospital and Montefiore Home; $2,000 each to the Henry Street Settlement and the Monmouth Hospital at Long Branch, N. J.

The will of the late Mrs. Rosina E. Hoyt makes a bequest of $15,000 to the Woman's Hospital, New York.

Obituary Notes.—Dr. CHARLES THEODORE SAUER of Brooklyn, N. Y., attending laryngologist to the Methodist Episcopal Hospital, died there from septicemia and pneumonia, on March 28, at the age of fifty-seven years. He was graduated from the Long Island College Hospital in 1885.

Dr. PORTER F. CHAMBERS died of heart disease at his home in New York City on March 19, at the age of sixty-nine years. He was born in Russel County, Ga., was graduated from Emory College in 1873, and from Bellevue Medical College, New York, in 1876. He was a Fellow of the American College of Surgeons and the American Medical Association, a member of the New York Pathological Society, the New York Academy of Medicine, the New York Obstetrical Society and of many lay organizations. He was senior consultant of the staff of the Woman's Hospital and a professor of clinical gynecology at Columbia University. He was consulting surgeon to the French Hospital and a member of the staff of the Southampton, L. I., Hospital.

Dr. DAVID G. WILLETS, assistant epidemiologist of the United States Public Health Service, died in Atlantic City on March 26, at the age of forty-eight years. He was graduated from the Georgetown University in 1907. Since that time he has been an assistant in the biological laboratory of the Bureau of Science at Manila, assistant professor of medical zoology at the College of Medicine and Surgery, University of the Philippines, and in various branches of the Public Health Service. He was a member of the American Medical Association and the Helmintal Society of Washington. He was an author of bulletins and pamphlets on pellagra and conditions affecting health in the Philippines.

Dr. MCWALTER BERNARD SUTTON of New Rochelle, N. Y., a graduate of New York University and Bellevue Hospital Medical College in 1905, died in Hamburg, Germany, on March 30, at the age of forty-nine years.

Dr. CHARLES CLINTON AGIN of Cincinnati, a graduate of Miami Medical College in 1875, died on March 22, at the age of seventy years. He was a Fellow of the American Medical Association. He was instrumental in founding the West End Medical Society and served as its president for more than twenty years.

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Correspondence.

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, March 17, 1922.

Lunatic Asylums in Great Britain.—Mention has been made in previous letters of severe criticisms made on the conduct of lunatic asylums in this country. A Dr. Lomax, who has held positions in asylums, some few weeks ago severely arraigned the whole system. A committee was chosen to investigate his charges, but inasmuch as two of the committee have been superintendents of mental hospitals and therefore presumably not devoid of bias, Dr. Lomax has refused to give evidence before the committee. This attitude has been characterized by some as evidence that he was unable to support his charges and therefore unwilling to be cross-examined. On the other hand, there are those who, like an editorial writer in the Medical Press and Circular, believe that he was quite justified in making such a decision. The writer in question who heard Dr. Lomax speak on the subject, holds that no one who has heard him can fail to have confidence in him or doubt his good faith. His sincerity is obvious and it must be borne in mind that he does not impeach the officers of the institutions, but lays all the blame on the system itself. An interesting point was brought up in the speech of Dr. Lomax, namely, the value of a lunatic's evidence in a court of law. The speaker contends that in certain cases evidence of this nature may be relied on. While a lunatic may suffer from delusions regarding self-persecution, it seems that he seldom, if ever, entertains delusions concerning the persecution of others. Consequently, if an individual who has been an inmate of a mental hospital makes a charge of ill-treatment of another inmate, there is some probability of its being true. It does appear that a committee appointed to investigate the methods in which mental hospitals are conducted, should consist of absolutely impartial persons. It may be said that ex-superintendents of such institutions are well qualified from the standpoint of expert knowledge, to investigate charges brought against their management. But by reason of having been themselves responsible for or concerned in the conduct of these hospitals cannot but render them biased and thus not well fitted to act as judges. Mental cases should be treated with the greatest humanity, although it cannot be denied that the habits and behavior of those suffering from certain forms of mental disease are trying in the extreme.

Accident to Sir Thomas Barlow.—Sir Thomas Barlow, one of the best known and most respected of British surgeons, met with a somewhat serious accident a few days ago. On March 2 last in the early evening, he was crossing Southampton Row, a generally crowded thoroughfare with a good deal of swift motor traffic, when he was knocked down by a motor car. When he was picked up he was found to be unconscious and was taken in an ambulance to the Royal Free Hospital, where he was discovered to be suffering from cerebral concussion, and to have sustained a large scalp

wound on the back of his head. After having been treated he was taken to his own house in Wimpole Street. On account of his age much anxiety is felt by his numerous friends as to his progress, although it is satisfactory to learn that at the time of writing he was progressing as favorably as could be expected in the circumstances. This accident follows somewhat closely on the death by similar means of another distinguished London physician, and once again draws attention to the dangers to the pedestrian of the streets. In spite of the fact that in the control of street traffic London policemen deservedly have a world-wide reputation, traffic is not regulated in this immense city with the highest regard for the safety of those on foot. Swift vehicles, slow vehicles, and bicycles all run on the same streets, and even if one be young and agile, one must look out very carefully and sometimes exercise one's agility to the utmost extent in order to avoid injury. To the old, feeble, or crippled the crossing of a crowded street is a veritable menace.

National Health Insurance.—Sir Alfred Mond, the Minister of Health, has now decided not to introduce a bill for increasing National Health Insurance contribution, despite the fact that he gave notice of it at the opening of the session. He has now prepared and will continue another bill to bring about by different means the economies in Health insurance which the Geddes Committee recommended. He has made a deal with the approved societies, by virtue of which there will be no increase in contributions, but they will have to draw on their reserves to tide over the present difficulties of insurance.

Third International Congress of the History of Medicine.—The International Society of the History of Medicine was founded in Paris on October 8, 1921. It has for its object the study of the history of medicine in all its branches and the coordination of research work in these subjects. The society meets in congress every three years and it has been decided to hold the next meeting from July 17 to 22, 1922, in London. Meetings will be held in the buildings of the Royal Society of Medicine, of the Royal College of Physicians, the Royal College of Surgeons, the Wellcome Historical Museum, and elsewhere. In passing it may be said that the Wellcome Historical Museum comprises a wonderful collection of articles connected with medicine and surgery. It is almost unique of its kind and is housed in a fine building in the midst of the doctors' quarter of London. The following subjects have been suggested for consideration and discussion at the Congress in question: (1) The principal seats of epidemic and endemic diseases in the Occident and Orient in the Middle Ages, including Plague, Gangrenous Ergotism, Leprosy, and Malaria. (2) The History of Anatomy. (3) The revival of medical knowledge during the sixteenth century.

Ray Treatment of Malignant Growths of Nasal Accessory Sinuses.—At a meeting of the Section of Laryngology held at the Royal Society of Medicine on March 3 last, Dr. Finzi discussed the question from the radiological aspect. He said that the whole matter of the efficacy of ray treatment in malignant conditions depended on giving to every cell in that growth a lethal dose of the rays being used; and that lethal dose varied in different classes of growth. That for sarcoma was much less than for carcinoma, that for round-celled sarcoma was less than for spindle-celled sarcoma or myxosarcoma. For sarcoma he thought ray treatment might well replace surgery. The worst results from the rays were in epitheliomata because it was so difficult to get a lethal dose to the whole growth. By the Ehrlanger method, however, the aim was to get a sufficient dose of highly penetrating rays to every cell in the growth. Treatment of recurrences by irradiating methods was not so satisfying as the treatment of a primary growth untouched by surgery. He advocated intensive x-radiation preceded by a sterilizing method such as that of copper ionization, especially in epitheliomata. Operation should not be attempted sooner than a month after radiation had been carried out.

French Edition of Dr. Bainbridge's Cancer Problem.—This well known work on cancer by Dr. W. S. Bainbridge has been translated into French by Dr. Hertoghe of Antwerp, Belgium. A point of considerable interest in the publication of this book is the fact that it is the first work issued from the press of Louvain University, since the stately and ancient buildings of that university were razed to the ground by the Germans. The book is a good example of the printer's and binder's craft and augurs excellently for the future of the Press of Louvain University, which has risen Phoenix like from the flames.

Progress of Medical Science.

Boston Medical and Surgical Journal.

March 23, 1922, clxxxvi, 12.

1. Clinical Diagnosis of Cardiac Conditions. William E. Preble.
2. Ankylosis of the Jaw. R. H. Gilpatrick.
3. The Public Health Status of Amebic Dysentery in the United States as Potentially Influenced by the World War. C. W. Stiles.
4. Relative Fertility. Edward Reynolds.
5. Pathology of Tuberculosis. Lawrence Weld Smith.
6. Serum Treatment of Lobar Pneumonia. L. W. McGuire.
7. A Case of Mesenteric Thrombosis. John C. Henry.

1. Clinical Diagnosis of Heart Disease.—William E. Preble points to a death rate from cardiac disease in Massachusetts of 198.4 per 100,000 population, of which 7.7 were due to acute heart infections and 190.7 were due to chronic organic heart disease. He sums up the more important points in the clinical diagnosis of chronic heart disease and reviews White's so-called triple diagnosis of cardiac disorders. In discussing myocardial disorders he states that most authorities attach very little significance to premature contractions, or "extrasystoles." However, as they are practically all agreed that auricular fibrillation, auricular flutter, paroxysmal tachycardia, and extrasystoles are related conditions, there would seem to be reasonable ground for assuming that the extrasystole may be a sign of beginning myocardial disease. Commenting on cardiac disorders of the obese, he emphasizes the fact that the very obese are prone to have heart and arterial disease, and to die before their time. Of 600 cases of obesity seen in his private practice, 388, or approximately 65 per cent., had mitral regurgitation, functional or organic. Of these 600 cases, 496 were treated dietetically to reduce their weight. In 58 the murmur disappeared altogether with all signs of cardiac distress and usually with a marked drop in blood pressure. Most of these obese patients have a more or less elevated blood pressure which promptly drops to approximately normal, under treatment, provided there

is no other cause for the hypertension. Insurance companies do not reject fat people because of sentiment, but because they are poor insurance risks, on account of their proneness to develop disease of the heart and arteries. In the writer's opinion, these patients are all *potential* cases of myocardial disease, unless appropriate treatment is instituted.

3. The Public Health Status of Amebic Dysentery in the United States as Potentially Influenced by the World War.—C. W. Stiles reviews the question of infection with *Endameba histolytica* and other protozoa in this country. The replies to a questionnaire sent out to hospitals and medical schools show that in at least 31 states clinical amebic dysentery has not increased since the armistice to an extent that it attracted the attention of hospitals and medical schools. The public health service has examined 13,043 specimens from 8,029 persons, in 48 institutions, located in 22 states and the District of Columbia. Of these, 44 per cent. showed either protozoan or worm infection of one kind or another; 39.9 per cent. showed protozoa. There were 333 persons (4.1 per cent.) who showed infection with *Endameba histolytica*, and these cases were scattered in every state which sent in a fair number of specimens. The conclusions seem justified that on an average the soldiers who served in Europe were not infected with amebic dysentery any more than are certain other elements of our population, namely, the soldiers who saw only home service, certain groups of civilians and certain training schools. Therefore it would not be justifiable to go to the trouble and expense involved in trying to search out and treat the numerous carriers of amebic dysentery presented by the veterans of the late war. So far as the rates of infection are concerned, it is safe to concede the point that these are higher than were preconceived before the war, but so far as the significance of these rates are concerned, it seems that we must revise our former conceptions and must conclude that the carrier of amebic dysentery in this country is not such a menace to his neighbors as has often been taken for granted. Dr. Stiles points out that the fly is the most potent mechanical vector of the infection.

6. Serum Treatment of Lobar Pneumonia.—L. W. McGuire reports a series of 35 cases including all the Type I pneumonia which occurred in his service at the Naval Hospital at Chelsea, Mass., as well as those treated in private practice since leaving the service. In these cases the leucocyte count averaged 26,000. The amount of serum given averaged 205 c.c. The mortality was 5.7 per cent. Complicating empyema occurred in two cases. The average duration of the pneumonia in this series of 35 cases as determined by the temperature and symptoms was 66 hours; in other words, the time from the initial chill and fever until the temperature was again normal was less than three days. The course of the disease was thus decidedly shortened. The cases were practically all treated during the second day of the disease. The results in this series of cases compares favorably with an average mortality of 10.5 per cent. in 495 reported cases, many of which were treated late in the disease, and with the normal mortality of Type I pnuemonia (25 to 30 per cent.)

Journal of the American Medical Association.

March 25, 1922, lxxviii, 12.

1. A Remedy for Professional Unrest. H. C. Macatee.
2. Benign Lesions of Female Breast for Which Operation Is Not Indicated. Joseph Colt Bloodgood.
3. The Function of Colostrum. Julian H. Lewis and H. Gideon Wells.
4. Cerebral Embolism Following the Arrest of Auricular Fibrillation by Quinidin. Frank N. Wilson and George R. Herrmann.
5. The Treatment of Multiple Sclerosis. Charles Metcalfe Byrnes.
6. Medicolegal Application of Human Blood Grouping; Second Communication. Reuben Ottenberg.
7. Quinidine in the Treatment of Cardiac Irregularities. Fred M. Smith.
8. Acute Conditions in the Abdomen. W. W. Grant.
9. Urticaria from Habitual Use of Phenolphthalein: Report of a Case. Edward F. Corson and David M. Sidlick.
10. Dental Infection Secondary to Acute Maxillary Sinusitis: Report of Three Cases. John A. Glassburg.
11. Relation of Constipation to Intestinal Intoxication. Arthur N. Donaldson.
12. Aplastic Anemia Following Neo-Arsphenamine: Report of a Case. S. M. Feinberg.

2. Benign Lesions of the Female Breast for which Operation is Not Indicated.—Joseph Colt Bloodgood states that it seems almost incredible yet is true that in the last 100 women whom he has seen because of some complaint referred to one or both breasts, in more than one-half, after a history and careful examination, operation has been advised against. A total of 267 cases, the majority observed during the last five years, which were designated as benign conditions in which no operation was indicated, are considered in eleven groups as follows: (1) pain, 64 cases; (2) painful scar, 22 cases; (3) discharge from the nipple, 3[illegible] cases; (4) retraction of the nipple, 3 cases; (5) lesions of the nipple suggesting Paget's disease, 3 cases; (6) history of disappearing tumor, 24 cases; (7) definite and indefinite, single and multiple tumors in women under the age of 25, 23 cases; (8) definite and indefinite tumors in women over 25, 64 cases; (9) tumors in the axilla-aberrant breast tissue, lipoma, lymph glands, tumors of the sebaceous and sweat glands, 17 cases; (10) unilateral hypertrophy at puberty, 12 cases; (11) diffuse virginal hypertrophy, 3 cases. Bloodgood asserts that pain and discharge from the nipple are not conditions for which operation is indicated; retraction of the nipple as a symptom of onset of cancer is rare, but when retraction is of recent origin and not associated with a history of lactation, it should be looked upon as a sign of cancer and the complete operation performed. Any warty condition of the nipple associated with scaling, discharge or ulceration; any irritation of the nipple with redness or weeping; anything suggesting eczema or ulceration, which does not heal within a few weeks after simple measures of cleanliness, should be looked upon as Paget's disease, and be treated by complete excision of the breast. There is some evidence that benign adenoma in young girls, if left alone, ultimately disappear. The indication for operation on a single tumor or multiple definite tumors in one or both breasts in a girl 20 years or less of age is: size, recent rapid growth, extreme pain, and prospect of early marriage. Multiplicity of multiple tumors is suggestive of benignity. Therefore, there should always be a careful examination of both breasts. The differential diagnosis of breast lesions depends more on palpation than on any other factor in the history or examination. The writer's method is to palpate both breasts at the same time, the right breast with the left hand, the left breast with the right hand, palpating corresponding areas, never touching the nipple until palpation is completed.

3. The Function of Colostrum.—Julian H Lewis and H. Gideon Wells review the literature and record studies on the protein content of the human blood and human colostrum which they summarize as follows: The blood of newborn infants, and probably of all other mammals, contains little or none of the serum protein fraction known as euglobulin. This seems to be supplied chiefly by the colostrum which differs from milk in containing a large amount of this protein secreted directly from the blood. The euglobulin is the only blood protein that appears in the colostrum, and it is the only protein fraction in which the newborn infant's blood is deficient. Evidently the colostrum is formed to provide the fetus with a supply of euglobulin for its blood during the short period immediately after birth when proteins may be best absorbed without disintegration by digestive proteolysis. The importance of this lies in the fact that the protective antibodies of the blood are found associated with the euglobulin fraction, and that the quantity of protective antibodies found in the colostrum, the milk, and infants' blood varies directly with the euglobulin content of these fluids. Evidently the colostrum furnishes to the newborn mammal protective antibodies, which probably add must to its capacity to resist infection in early life. If the infant does not receive colostrum it acquires euglobulin in its blood much more slowly, and presumably is in corresponding degree less resistant to infection. It is not probable that there is any equivalent substitute for human colostrum for newborn infants. The findings of numerous recent workers add force to the statement made by Famulener, ten years ago, that it is most

highly desirable that every newborn infant should receive its full ration of human colostrum.

5. The Treatment of Multiple Sclerosis.—Charles Metcalfe Byrnes cites five cases of multiple sclerosis in which antisyphilitic treatment was used and draws the following conclusions: No organic disease of the central nervous system so closely resembles syphilis in its symptomatology and pathology as does multiple sclerosis. In all probability the lesion in insular sclerosis is of an inflammatory nature. The cellular reactions are quite similar to those of syphilis; and, with the exception of the Wassermann test, the spinal fluid exhibits changes comparable to those in the vascular and gummatous types of cerebrospinal syphilis. Failure to demonstrate *Spirochæta pallida*, or secure a positive Wassermann reaction in all cases, is no proof that syphilis may not be an etiological factor. On the other hand a positive Wassermann reaction in multiple sclerosis does not establish its specific nature, since the two affections may exist simultaneously. The therapeutic test is of no value as a diagnostic measure, since ineffectual treatment does not disprove a syphilitic factor, nor does effective therapy establish its presence. Although syphilis may not be an etiological factor, there are undoubtedly clinical types of disseminated syphilis that are indistinguishable from insular sclerosis; and until the etiology of the latter disease is established, or a more acceptable form of therapy devised, the adoption of antisyphilitic treatment is worthy of consideration. Treatment is more likely to be effective if begun early, and both intravenous and intradural medication are recommended. Mercury and the iodides may also be prescribed to advantage.

7. Quinidine in the Treatment of Cardiac Irregularities.—Fred M. Smith reports that he has treated 12 patients with permanently established auricular fibrillation with quinidine sulphate. In 6 the sinus rhythm was restored. In 3 the duration of the normal mechanism was transient. Two have maintained a sinus rhythm two and one-half months and eight months, respectively. Three patients with paroxysmal auricular fibrillation were treated with quinidine. Two of these have had no further attacks. The remaining one took 0.2 gm. of quinidine after meals over a period of several weeks without apparently influencing the frequency of the condition. The treatment was most successful in those in whom the auricular fibrillation was of short duration and associated with a good cardiac muscular. In this group, however, the results could not always be predicted. The results of the quinidine treatment of auricular fibrillation from the standpoint of improving the general condition of the patient have on the whole, in the opinion of the writer, been unsatisfactory. It would seem that results might further be improved by the employment of drugs that have a favorable action on the cardiac musculature, provided the former does not counteract the action of the latter in maintaining a sinus rhythm. Twenty patients with premature contractions were treated with quinidine. Seventeen reported that they were markedly improved by the treatment; in 10 the irregularity was apparently eliminated. Of two patients with paroxysmal tachycardia, treated with quinidine, one was definitely improved.

The Lancet.

March 4, 1922, ccii, 5140.

1. The Arris and Gale Lecture on the Nerve Supply of the Parietal and Subperitoneal Tissues. V. Zachary Cope.
2. Duodenal Regurgitation into the Stomach during Gastric Digestion. Charles Bolton and Gordon W. Goodhart.
3. The Infant Mortalities of the Rich and Poor. Duncan Forbes.
4. Shortening of Postoperative Convalescence. H. Ethelberta Claremont.
5. Twilight Sleep: Notes on 75 Cases. H. M. Gerson.

2. Duodenal Regurgitation into the Stomach during Gastric Digestion.—Charles Bolton and Gordon W. Goodhart record the results of observations made to determine when, and to what degree, the contents of the digesting stomach are neutralized by the regurgitation of pancreatic juice, and how the curve of gastric acidity is modified by such regurgitation. They conclude as follows: (1) Duodenal regurgitation occurs at a definite period, but not always at the same time, during gastric digestion, and must be considered as a definite link in the chain of events occurring in the digesting stomach. (2) It determines the shape of the curves of hydrochloric acid and of inorganic chlorides, the former rapidly falling and the latter rising. (3) This regurgitation depends upon relaxation of the pyloric sphincter; and its presence or absence as determined by the shape of the curves above mentioned is a measure of the degree of tone or spasm of this sphincter, or of the obstruction of the pyloric orifice. (4) The curve of gastric secretion follows closely that of the total chlorides, but at a somewhat lower level. (5) The absence of free hydrochloric acid or the presence of a low active hydrochloric acid curve are no indications, when taken alone, that the gastric secretion is correspondingly diminished, for the total chlorides may still be at the normal height; these cases are due to free duodenal regurgitation and are similar to those of successful gastroenterostomy cases. (6) A curve of the "climbing type" does not necessarily indicate hypersecretion, but rather a delayed and deficient pyloric relaxation. Hypersecretion during the digestive phase is indicated by a rapid and high rise in the total chloride curve in the early part of the period; and during the interdigestive phase by the presence of an excessive amount of residual fluid containing a high percentage of total chlorides. (7) The two great factors contributing to the form of these curves are: (a) varying degrees of pyloric relaxation occurring at varying times, and (b) hypersecretion. The part played by deficient or excessive pancreatic secretion remains an open question. (8) The curves of free hydrochloric acid and total acidity at present in use show, in most cases, the general shape of the curves described in this paper, more particularly when the acidity is high; but they fail in this respect when free hydrochloric acid is absent.

5. Twilight Sleep: Notes on 75 Cases.—H. M. Gerson gives a résumé of his experience with twilight sleep from May to December, 1920. When the patient was of a nervous temperament, he relied upon the regularitv of intervals of pain (7 minutes) rather than dilatation of the os, and commenced treatment without any vaginal examination. In the case of the multiparæ treatment was commenced as soon as labor definitely set in, always making quite sure that the pains were those of labor and never relying upon the nurse or patient for such information. Before giving the first injection, that is, 1/150 gr. scopolamine and 1/3 gr. morphine, the room was darkened and instruments, dressings, etc., removed. A second injection of 1/150 gr. scopolamine was given alone in one hour's time. After this true amnesia is not obtained until three-quarters of an hour has elapsed. The percentage of complete amnesia in primiparæ is very high in comparison with multiparæ, owing to the fact that the latter were seen too late in labor for the action of the drug to be effective. Of the 75 cases forming the basis of this report, 48 were primiparæ and 27 multiparæ. There was no maternal mortality, but three of the infants did not survive. The average number of injection was 6 in the primiparae and 4.2 in the multiparæ. The maximum number of injections was 12. Gerson is of the opinion that oligopnea occurs more frequently in labor in which twilight sleep has been employed than in unaided labor, although in none of his cases could the infant mortality be attributed to this cause. In every case it is advisable to exercise a certain amount of vigilance until the child gives a healthy, prolonged cry. In this series oligopnea occurred more frequently in labors of short duration when delivery took place shortly after an early injection. In regard to the after effect of twilight sleep upon the children, in following up his cases the writer found the mortality during the first year nil, and the mentality, as far as could be judged, normal.

British Medical Journal.

March 4, 1922, ii, 3192.

1. Some Observations on the Investigation of the Toxemias of Pregnancy. A. Louis McIlroy.
2. Inaugural Lecture on Tuberculosis in Wales. S. Lyle Cummins.
3. The "Buffering" of Blood: A Summary. A. V. Hill.

4. The End-Results of Removal of Tonsils and Adenoids. Harold S. Sington.
5. The After-Results of 21 Cases of Iliocolostomy Performed for Tuberculous Bones and Joint Diseases. Hamilton Drummond.
6. The Function of the Chromophil Tissues in Relation to Splanchnic Stimulation. A. W. Sheen and Swale Vincent.
7. The Relation of the Corpus Luteum to Menstruation and Pregnancy. W. R. Mackenzie.
8. Mucocele of the Frontal Sinus. A. Acomb.
9. The Lettsomian Lectures on Amebic Liver Abscess. Leonard Rogers.

3. The "Buffering" of Blood.—A. V. Hill refers to the work of Barcroft and his collaborators which has shown that in the average normal man, if the volume of carbon dioxide taken up by the blood be plotted against the hydrogen-ion concentration of the plasma, then over the range of importance in the living body, the relation is a straight line. The slope of this line is a measure of the efficiency with which the blood is buffered. There are certain small variations in normal persons from the average curve, and the factors causing these variations may be of importance clinically. Hill pursues the following line of argument: Carbon dioxide is present in blood almost entirely in the combined form, as bicarbonate; a little is dissolved. The hydrogen-ion concentration is proportional to the ratio of dissolved carbon dioxide to combined carbon dioxide. Since the dissolved carbon dioxide is proportional to the carbon dioxide pressure, one may say alternatively that the hydrogen-ion concentration is proportional to the ratio of carbon dioxide pressure to combined carbon dioxide. If we add bicarbonate to the blood, keeping the hydrogen-ion concentration constant, while we do so by increasing the carbon dioxide pressure in the same proportions as we increase the total bicarbonates, that is the combined carbon dioxide; then the total carbon dioxide held by the blood is increased by the amount combined in the bicarbonate added, plus the extra amount dissolved, owing to the increased carbon dioxide pressure. The second amount is very small, so that the only important increase is that due to the added bicarbonate. The same is true of adding bicarbonate at any fixed hydrogen-ion concentration, so that by adding bicarbonate to blood we merely raise the volume carbon dioxide hydrogen concentration line by a uniform amount all along; in other words, the degree to which is blood is buffered is unaffected by the addition of bicarbonate as such. The volume carbon dioxide hydrogen-ion concentration line is much less steep for plasma than for blood, which is natural since the red cells contain the major portion of the phosphates, and all the hemoglobin which provide the greater part of the base required to combine with, and to absorb, the carbon dioxide. The more red blood corpuscles in the blood, the steeper will be the line; hence the differences in the blood of normal individuals in this respect may be attributed to differences in the number and contents of the red cells. A steep volume carbon dioxide hydrogen-ion concentration line, implying a well buffered blood, will be a characteristic of an individual in whom exercise produces little respiratory distress; a line of little slope one would expect to find associated with dyspnea. Hill points out that it will be very interesting to study the physiological and the clinical aspects of variations in the slope and position of this line.

4. The End-Results of Removal of Tonsils and Adenoids.—Harold S. Sington gives a summary of 52 cases which have been under his care during the last few years. He has included all children under 10 years of age who have had their tonsils completely removed by dissection, and their adenoids removed at the same time. The striking fact brought out by the summary is that once convalescent after the operation is complete, the child's health is so greatly improved that one has hardly ever had to attend him or her again; and that the child is not so liable to other and fresh illnesses as one who retains this lymphatic tissue.

5. The After-Results of 21 Cases of Iliocolostomy Performed for Tuberculous Bones and Joint Disease.—Hamilton Drummond recalls that a few years ago the condition known as intestinal stasis was held responsible for many lesions, and among them tuberculous bones and joints. Arising out of this the operation known as iliocolostomy was introduced by Sir William Arbuthnot Lane. The cases selected for this operation were those which had defied all methods of treatment and were gradually losing ground. Of 21 patients operated upon in 1911, 1912 and 1913, three are alive at the present time; one, a case of hip disease, is cured, while the remaining two are greatly improved. Five cases cannot be traced to date; two of these were known to be well and healed two years after operation. X-ray evidence indicated that the short-circuited colon is still functioning in two cases. The third patient was not any better after iliocolostomy but complete colectomy was followed by improvement.

6. The Function of the Chromophil Tissues in Relation to Splanchnic Stimulation.—A. W. Sheen and Swale Vincent described observations carried out in cats, which show that peripheral splanchnic stimulation in cats produces a characteristic curve in which an initial rise is followed by a marked "dip" and a prolonged secondary rise. Elimination of the adrenals from the circulation abolishes or reduces the "dip," the more usual effect of splanchnic stimulation being a simple prolonged rise. While the adrenal elimination is probably an important factor in altering the curve, further experiments are required to determine completely the origin of the "dip." Since some "dip" may occur after adrenal elimination, a part of the effect must be normally due to influences other than chromophil secretion.

Indianapolis Medical Journal.

December, 1921, xxiv.

1. Acute Mastoiditis. John F. Barnhill.
2. Appendicitis Complicating Pregnancy. M. C. Sexton.
3. Concerning Elastic Splints, as Advocated by Dr. Douglas H. Stewart. Horace F. Allen.
4. The Re-Education of the Incapacitated Soldier (continued). G. C. Graves.

2. Appendicitis Complicating Pregnancy.—M. C. Sexton lays down the following rules: (1) The time to operate a chronic appendicitis is before pregnancy occurs. (2) Very mild primary appendicitis, or such cases as those in which the diagnosis is a matter of uncertainty, may be taken through the pregnant period with comparative safety. (3) Cases of recurrent appendicitis which constantly threaten the pregnancy with danger should be operated on as early in the period as possible. This also applies to severe primary attacks. (4) Perforative or gangrenous cases must be operated at once, no matter at what period. In a series of nine cases coming under the writer's observation the above statements and conclusions have all been borne out. These few cases have served to show that appendicitis in pregnancy will bear more watching and care than is ordinarily given to it. They have served to emphasize that which is now almost universally accepted in appendicitis of the non-pregnant, namely, early operation in all cases.

Southern Medical Journal.

December, 1921, xiv, 12.

1. The Aristocracy of Service. Jere Lawrence Crook.
2. The Patient Himself—The Need of a Better Study of His Personality and of the Varied Meaning of Symptoms. William H. Witt.
3. An Analysis, Clinical and Otherwise, of Four Hundred Non-Surgical Drainages of Pathologic Gall-Bladders. George M. Niles.
4. Tuberculin. C. Hartwell Cocke.
5. Intestinal Parasites in Eastern Cuba. N. Nedergaard.
6. Public Health Policies and the Medical Profession. W. S. Leathers.
7. Essentials of Successful Leadership for Public Health Work on a County Basis. S. W. Welch.
8. The Ideals of the Surgeon. J. Sheldon Horsley.
9. The Limits of Orthopedic Surgery. Edward S. Hatch.
10. Fractures of the Lower Extremity of the Radius. William T. Henderson.
11. Preparedness Against Cancer. Joseph C. Bloodgood.
12. Our Specialty and General Medicine. W. T. Patton.
13. Dilatation of the Pharynx as a Means of Relieving Dysphagia in Tonsillitis. Peritonsillar Abscess and Postoperative Tonsillectomies. F. E. Hasty.
14. Correlation in the Teaching of Dentistry and Medicine. Douglas VanderHoof.

3. An Analysis, Clinical and Otherwise, of Four Hundred Nonsurgical Drainages of Pathological Gall-Bladders.—George M. Niles finds the Lyon-Meltzer method of gall-bladder drainage a worth while one and believes it has come to stay. It cannot, however, supplant surgery where there are gross pathological

lesions of the gall-bladder, as empyema, dense pericholecystic adhesions, or where gallstones are present. In some instances by early and adequate drainage this method may clear up certain cases that without it would have developed into surgical states. Its employment is indicated in jaundice, cholecystitis, choledochitis, migraine, and those indeterminate "bilious" conditions that have resisted other treatment. None of the patients in this series have suffered marked depression or illness as a result of this treatment.

13. Dilatation of the Pharynx as a Means of Relieving Dysphasia in Tonsillitis, Peritonsillar Abscess, and Postoperative Tonsillectomies.—F. E. Hasty states that to assist nature in combatting and eliminating systemic toxemia following operation we must make it possible for the patient to swallow with a reasonable degree of comfort. Sanger's method makes full fluid intake not only possible but comparatively comfortable. It consists in standing behind the patient, grasping each side of the head with the two hands encircling the ears, taking care not to press upon the neck behind the angle of the jaw, then raising the patient up, directing him to drink at the same time that he is being raised. While Sanger suggested pressure both before and behind the ears, the writer has found that pressure in front of the ears only is necessary. He has devised a mechanical appliance which is attached to a chair or the bed and by which the proper degree of suspension can be secured. This device solves most, if not all, of the swallowing problems of tonsillar infections and postoperative tonsillectomies.

American Journal of the Medical Sciences.

December, 1921, clxii, 6.

1. Acute Cerebellar Encephalitis (Acute Cerebellar Ataxia). J. P. Crozer Griffith.
2. Clinical Studies in Functional Disturbances. Study 1. Functional Thyroid Tests as an Aid to Differential Diagnosis. Nelson G. Russell, John A. P. Millet, and Byron D. Bowen.
3. A Clinical Classification of Asthma Based upon a Review of Six Hundred and Forty-eight Cases. Francis M. Rackemann.
4. Observations on the Treatment of Auricular Fibrillation by Quinidin Sulphate. C. C. Wolferth.
5. Nonspecific Wassermann Reactions in Diabetes Mellitus. Edward H. Mason.
6. Lead Poisoning, with Special Reference to Poisoning from Lead Cosmetics. Report of Four Fatal Cases of Encephalopathia Saturnina Occurring in One Family. Moses Barron and Harold C. Habein.
7. An Analysis of 182 Cases of Cancer of the Stomach, with Special Reference to the Incidence of Preëxisting Ulcer. S. Paul Taylor and T. Grier Miller.
8. The Relation Between Poliomyelitis and Epidemic (Lethargic) Encephalitis. William B. Cadwalader.
9. Meningococcus Septicemia. W. A. Bloedorn.
10. The Morphology of the Heart in Relation to Habitus and a New Method of Estimating Morphological Changes. A Roentgen Study. I. Seth Hirsch.

2. Clinical Studies in Functional Disturbances. Functional Thyroid Tests As an Aid to Differential Diagnosis.—Nelson G. Russell, John A. F. Millet, and Byron D. Bowen have endeavored to correlate the basal metabolism, glucose tolerance and adrenalin sensitivity tests in disturbances of the thyroid and to note the results of their use in other endocrinopathies and various conditions of chronic disease in 85 cases. These cases were divided into four groups: Hyperthyroid, hypothyroid, fatigue and a large miscellaneous group. Clinical methods were found satisfactory in the diagnosis of frank hyperthyroidism, myxedema, and to a lesser extent in the third and fourth groups. In apparent hypothyroidism—not myxodematous in type—the ordinary clinical methods usually failed to suggest the probable diagnosis. In such cases the diagnosis was made entirely on the basis of a decreased metabolic rate, together with a definite improvement after the administration of thyroid extract. Of the functional tests used the basal metabolism was the only one to yield uniform results, which could be reasonably interpreted in association with the clinical findings and subsequent progress of the cases studied. Both of the other tests yielded positive results in almost all cases of hyperthyroidism, but the frequency of similar responses in a variety of other conditions, in some of which the diagnosis of hyperthyroidism was not even a remote possibility, necessarily detracts from their value as specific tests of thyroid function. Three points of special interest are brought out by the data presented. These are: (1) That there are some patients showing definite hypersensitiveness to adrenalin and intolerance to glucose, who tolerate thyroid extract well and improve under its administration; (2) that it is dangerous to attribute much importance to a positive adrenalin response in the diagnosis of suspected hyperthyroidism, and (3) that an occasional case of classical exophthalmic goiter showing marked increase of basal metabolic rate may exhibit no hypersensitiveness to adrenalin.

4. Observations on the Treatment of Auricular Fibrillation by Quinidin Sulphate.—C. C. Wolferth presents observations made on twelve cases of auricular fibrillation treated with quinidine, in seven of which the normal rhythm was restored, the fibrillation was converted to flutter in one, while in four there was failure to abolish the rhythm. During the periods that attempts were being made to abolish fibrillation the subjective effects were various. Four patients, including two in which the treatment was unsuccessful, said they felt better, but in the remainder there was no improvement. In no case did alarming symptoms develop. There was no significant effect noted on urinary excretion. In three patients there was rather sudden marked increase in the ventricular rate; in one of these the symptoms of cardiac embarrassment began to develop and the drug was discontinued. From the electrocardiographic evidence it would seem that quinidine must exert a profound effect on the transmission of the excitation wave through its abnormal path in non-specialized auricular muscle. It seems not unlikely that such an effect of the drug may play an important part in the abolition of fibrillation and flutter. In these cases after the restoration of normal rhythm the auriculo-ventricular conduction time appeared to be increased above the average, but it is scarcely justifiable to assume that the alterations in conduction were necessarily due to quinidine. The presence or absence of valvular disease did not seem to affect the efficacy of the treatment. Likewise the age of the patient did not seem to make any particular difference. The most favorable cases for treatment are those with relatively good heart muscle and at least fair compensation, and those in whom the flutter or fibrillation has been of relatively short duration.

5. Nonspecific Wassermann Reactions in Diabetes Mellitus.—Edward H. Mason reports two cases of diabetes mellitus, which gave strongly positive Wassermann reactions. He points out that such reactions in cases of diabetes mellitus, which give no evidence of past infection, must be considered conservatively. It is probably due to some disturbed physico-chemical relationship. The facts indicate that material damage was done to the patients by the arsenic treatment. Probably the arsenic acted as a toxic agent upon the weakened pancreatic cells.

6. Lead Poisoning, With Special Reference to Poisoning With Lead Cosmetics.—Moses Barron and Harold C. Habein hold that the importance of lead and its compounds in producing disease is known to very few doctors, as well as laymen. He reports four fatal cases of encephalopathia saturnina, due to the use of a cosmetic containing lead occurring in one family. He points out that basophilic granulation of the erythrocytes is a striking and characteristic feature of most cases of lead poisoning. With proper straining technique this finding is of inestimable value for diagnosis and careful routine blood studies should be made as a prophylactic measure among workers in industries using lead. Besides being an industrial poison, lead is also the source of many miscellaneous forms of poisoning, chief among which is probably that resulting from the use of lead-containing cosmetics. Mild degrees of poisoning from one form of face powder containing lead is probably widespread, but because the symptoms are indefinite the true etiology remains undetected.

Wiener klinische Wochenscrift.

January 12, 1922, xxxv, 2.

Cancer of the Rectum.—Hochenegg has operated for this affection considerably more than 1,000 times, but for some reason he analyzes only the material of the past fourteen years, which amounts to 779 cases. The

ratio of male to female is nearly two to one. Twenty-nine patients were under thirty years of age, with the youngest a girl of twelve. The majority were in the sixth decade. Attempts to isolate special causal factors proved futile, for only about 3 per cent. suffered from obstipation, and but 7 per cent. had hemorrhoids. The attempt to form groups by symptoms was also unfruitful. In about one patient out of three the first symptom was some irregularity of stool. In sixty-six cases, or about once in eleven or twelve patients, some one had made a diagnosis of piles or intestinal catarrh before the admission to the author's clinic. The full clinical picture of the disease was presented but a limited number of times, while there were forty-one so-called "few-symptom" patients in which the disease was almost silent. In 138 cases the patients must have had the disease at least a year before they reached the author. The latter uses the term "drastic course" when the entire disease picture is evolved within four weeks, while by protracted course he means a duration of more than eighteen months. Anything from two to eighteen months in developing he terms of normal evolution. About 4 per cent. were admitted to the clinic with ileus and thirty-four patients were at once colostomized on this indication alone. The death rate in this class of case is shockingly high—44 per cent.—because the colon is enormously distended and secondary peritonitis from migrated bacteria is usually added. In about 32 per cent. the neoplasm was fixed to the surrounding tissues. In about 45 per cent. the growth was seated in the ampulla and in 26 per cent. within 10 cm. of the sphincter. The radical operability was 72.3 per cent., and the number actually thus operated on was 66.7 per cent. The number of patients colostomized was 184, including temporary, permanent and emergency. While there were a few individual survivals up to twelve years, 72.5 of these colostomized subjects survived less than a year. Of the considerable number who lived from one to three years, some showed good continence by reason of the warning sensation, but were in the minority. The author performed his radical sacral operation on 461 patients with an operative mortality of 11.1 per cent. and 33.6 per cent. of permanent cures (three year). The mortality of sacral anus operations was higher (14.1 per cent.), while that of resection was but 8.9 per cent. The three-year cures following resection numbered 37.1 per cent. The five-year survivals by all methods averaged about 25 per cent. The operation figures of the author so greatly outnumber the patients analyzed in the early portion of the paper that he is evidently quoting from his total operative material.

Wiener klinische Wochenschrift.

January 19, 1922, xxxv, 3.

Direct Heart Massage.—Amreich states that 48 cases of direct cardiac massage are now on record and that the percentage of reanimation as a result of this resource is 37.5. although in some of the cases the result was only temporary. The author has analyzed the material from the standpoint of certain criteria. Thus direct massage must have been undertaken only after the total failure of all of the more conservative measures. Again the first response to massage must have been at least five minutes after beginning the latter. Only 5 cases measure up to this standard. To this number the author adds a new observation. The patient was to be subjected to total hysterectomy under sacral analgesia and twilight sleep. The laparotomy incision had been made and 8 minutes had expired since the spinal injection. At this juncture patient became cyanotic and pulseless. She was brought up out of the Trendelenburg position and put under artificial respiration and oxygen inhalation, with an injection of camphor. Cardiac massage by the indirect König-Maas technique was added, with 5 cm. adrenalin solution thrown directly into the ventricle. As these measures provoked no response the author resorted to extrapleural exposure of the heart by the method of Kocher. The organ was found relaxed and motionless, and was now directly squeezed by four fingers of the right hand at its posterior surface against the back of the sternum. The effort was to press rhythmically 60 times a minute and this was maintained for 6 minutes with a second intraventricular injection of adrenaline before a few feeble contractions were felt followed at once by strong pulsations of 120 to the minute. All of the accessory measures were kept up but after three-quarters of an hour the organ began to flag and was massaged a second time with only temporary advantage. A third application of massage had a negative result and patient was pronounced dead.

Journal de Médecine de Bordeaux.

February 10, 1922, xciv, 3.

Study of Cancer in Holland.—Hammer, a physician of Amsterdam, calls attention to the high cancer death-rates of both France and Holland and mentions the activities of the Netherlandish Institute for the Study of Cancer. An old mansion has been transformed into a joint clinic, laboratory and radiologic temporary headquarters. Despite the outbreak of the war just as the Institute was beginning to function a notable amount of work has already been accomplished. Leeuwenhoeck, the first clinical microscopist, is a sort of patron saint and source of inspiration. Numerous statistics have been compiled and graphics teach us that the incidence of the disease throughout the country is very unequal, as is also the rate of increase. These inequalities cannot be accounted for by the prevalence of different types of cancer in different regions, although it is conceivable that occupation types especially would be present in special localities. In Limbourg the incidence is a fourth less than in Frise, these regions representing the lowest and highest death rates respectively. Since the Frisians are notably hardy and long lived it might be imagined that more people reach the cancer age, but this fact if proved would not explain the discrepancy. The problem is really of the most baffling nature. In Rotterdam it was noted among the record of curiosities that a very wide difference of incidence was found among the members of the two leading Protestant denominations. This difference was more marked than that between the Christians and Jews. Another fact brought out is that sarcoma is not especially a menace to the young as compared with the old, for it increases with age just as does cancer itself. Certain private practitioners submit their entire cancer figures. One in Hague finds one death in five among his patients due to cancer. A rural practitioner finds the distribution suggestive of an infectious disease and he has been struck by the frequency of familial cancer. At the same time it seems possible to eliminate heredity as a factor. Statistics from Tropical Holland are also instructive. In the Dutch East Indies cancer has but one-tenth the incidence of Holland proper. In the latter cancer of the digestive tube is fearfully common, while in Java it is unknown, although there they have primary cancer of the liver, which is extremely rare in Holland. But in Curacao cancer is said to be about as common as at home. Cancer of the breast in Holland seems to bear a distinct relationship to maternity and lactation, although in all other locations, aside from the uterus, the married woman has advantage over the single. In regard to treatment, a follow up to the limit of 300 cases submitted to operation, cases limited wholly to cancer of the breast, it was found that 10 out of 15 women were dead at the end of four years, while three others died sooner or later of the disease. Two out of 15 seem to have been cured by the knife, less than 14 per cent. Probably the salvage is a little higher at the present day.

In Honor of Theophile de Bordeu.—The second centenary of the birth of this pioneer in hydrology was celebrated at Pau on February 19, 1921. He anticipated to some extent the work of Bichat in anatomy, and Bernard and Broca in physiology, and was one of the medical philosophers of his day. Among those who took part in the exercises were some of the leading physicians of France, as Doleris, Cornet and Champetier de Ribes. Upon the house of his birth was affixed a marble tablet bearing the inscription "Theophile de Bordeu (1722-1776), Illustrious Physician Who Introduced the Use of the Pyrennean Mineral Waters, Was Born in this House February 22, 1722."—*Journal de Médecine de Bordeaux.*

Book Reviews.

FOOD PRODUCTS. Their Source, Chemistry, and Use. By E. H. S. BAILEY, Ph.D., Professor of Chemistry and Director, Chemical Laboratories, University of Kansas; Author of "A System of Qualitative Analysis;" "Sanitary and Applied Chemistry," etc. Second Revised Edition, with 92 Illustrations. Price, $2.50. Philadelphia: P. Blakiston's Sons & Co.

IN this work the author discusses the chief foods found in the different markets; he describes their source, methods of preparation for the market, how they are packed, preserved and shipped, their composition and food value. The book is of distinct value for, while there is little or nothing in it that is new, the facts here presented are only to be found in a large variety of books, pamphlets, and scientific reports, which are not always available when one is searching for information of this kind. In this new edition the sections dealing with alcohol and alcoholic liquors have been considerably condensed, since their manufacture is "of much less importance than formerly." The volume should find a place in all households where the family follows the oldfashioned habit of taking meals at home rather than in restaurants and hotels.

MIKROMETHODIK. Quantitative Bestimmung der Harn- und Blutbestandteile in kleinen Mengen für klinische und experimentelle Zwecke. Von Dr. med. et phil. LUDWIG PINCUSSEN, wissenschaftlichem Assistenten der II. Medizinischen Universitätsklinik zu Berlin. Price, M. 28. Leipzig: Georg Thieme, 1921.

THE author here presents the technique of socalled micromethods for the estimation of the principal chemical constituents in the blood and urine. He makes no claim for completeness in this field presenting only those methods with which he is familiar and attempting to choose the simpler ones with a view having them more generally applicable. He has collected these methods from many sources and for the most part has presented them as originally described. In some places he has introduced modifications that have appealed to him as effecting improvements. He has, perhaps naturally, not drawn heavily upon American sources for his technique and has followed Bang closely in many estimations. We believe that one who has not been familiar with the development of this branch of biochemistry will be surprised and interested to find how many estimations are included in this manual. There are sufficient illustrations of apparatus to make the text clear. It is a very satisfactory little book.

SURGICAL AND GYNÆCOLOGICAL NURSING. By EDWARD MASON PARKER, M.D., F.A.C.S., Surgeon to Providence Hospital, Washington, D. C.; and SCOTT DUDLEY BRECKINRIDGE, M.D., F.A.C.S., Gynæcologist to St. Joseph's Hospital, Lexington, Kentucky. With 134 Illustrations in Text. Second Edition, Revised. Price, $3.00. Philadelphia and London: J. B. Lippincott Company.

THE second edition of this book differs but little from its predecessor. Besides minor changes, there is some new matter, and some condensation and elimination of old matter, so that the volume is but little (if any) larger than before. The chief addition is the chapter on the Carrel-Dakin treatment of infected wounds; this chapter contains a detailed description of the technique from the nurse's standpoint. Much of the material contained in the volume is of an advanced kind, and will be of more interest to the nurses attached to the operating room than to the ordinary pupil nurses. The book contains an adequate amount of surgical pathology and technique, and the supplementary chapters dealing with emergencies and common conditions can be specially commended. The book is well printed and of convenient size; the illustrations leave nothing to be desired.

NOUVEAU TRAITÉ DE MÉDECINE. Publié sous la direction de MM. les Professeurs G. H. ROGER, F. WIDAL et P. J. TEISSIER. Fascicule VII. Avitaminoses; Maladies par agents physiques; Troubles de la nutrition. Price, 35 fr. net. Paris: Masson et Cie, 1921.

VOLUME VII of this system appeared at about the same time as Volume III. Its contents are vitamines and avitaminoses by Roger; scurvy by Benoit; infantile scurvy by Alfaro; pellagra by Perroncito; beriberi by Sacquépée; venom poisoning by Calmette; conditions determined by anaphylaxis by Pagniez; serum disease by Courmont; diseases caused by physical agents by Langlois and Binet; and diseases of nutrition by Le Gendre. More than one-half of the volume is devoted to the diseases of nutrition of which diabetes mellitus is the chief. The subject is discussed in detail but one cannot help feeling that the work of American investigators in this field should have received more consideration than Le Gendre appears to give it. The teachings of Allen and Joslin and their followers has effected a marked change for the better in the results obtained in treating diabetics in this country and it does not seem as though foreign writers could afford to ignore them. Roger's communication concerning vitamines is highly interesting. Calmette's paper on snake venoms is, of course, admirable and complete. Perroncito retains a conservative attitude toward the active discussion as to the cause of pellagra. Pagniez still includes the conditions which we are getting to know as hypersensitiveness, under the heading of anaphylaxis, but with some reservations. The volume is quite up to the high standard of the work as we have seen it.

ATLAS FOR ELECTRO-DIAGNOSIS AND THERAPEUTICS. By F. MIRAMOND DE LAROQUETTE, M.D. Authorized translation by MARY GREYSON CHEETHAM, with Foreword by ROBERT KNOX, M.D., Director Electrical and Radiotherapeutic Department, Cancer Hospital, London. Price, $4.50. New York: Paul B. Hoeber, 1921.

THE author is chief of the North African Electroradiographic Service at Algiers. The number of pages is 180, of illustrations 52. The nine chapters are devoted respectively to the sensory motor nerve paths, head and trunk, upper limb, lower limb, normal excitability of nerves and muscles, normal coefficients of excitability of the nerves and muscles, observations on electrodiagnosis, articulations and skin.

THE POCKET ANATOMY. By C. H. FAGGE, M.B., M.S. (Lond.), F.R.C.S. Eighth Edition. Fiftieth Thousand. Price, $1.75. New York: William Wood and Company, 1920.

THIS little compend is so well known that it is hardly necessary to draw attention to the appearance of a new edition. This work is more brief and condensed and also more accurate than most of its competitors; non-essentials are omitted, and stress is laid on the relations of the various structures. In this revision the old nomenclature has been reinstated throughout.

THE SPLEEN AND SOME OF ITS DISEASES, Being the Bradshaw Lecture of the Royal College of Surgeons of England, 1920. By Sir BERKELEY MOYNIHAN, Leeds. With Thirteen Full-page Diagrams. Price, $5.00. Philadelphia: W. B. Saunders Co., 1921.

HITHERTO the spleen, doubtless because of a lack of knowledge of its functions and importance in the economy, has enjoyed a fair degree of immunity from the surgeon's attacks, but this freedom cannot be much longer counted upon, for as the author of this most readable monograph remarks, "We are beginning to realize that the spleen, too, plays its part, perhaps a considerable one, in the etiology of diseases whose most conspicuous symptoms are evoked by associated or consecutive affections of other organs. We can no longer consider diseases which affect our abdominal organ as being restricted to that organ. . . . The spleen which has been little regarded in this connection, may now justly claim a measure of attention." The several diseases to which special chapters are devoted are pernicious anemia, leucemia, Hodgkin's disease, splenic anemia (Banti's disease), hemolytic jaundice, Gaucher's disease, von Jaksch's disease, and polycythemia. A feature of great value is the series of plates, many of them colored, showing diagrammatically the chief changes in the various diseases discussed. Sir Berkeley Moynihan illumines every subject to which he turns his attention and his essay on the diseases of the spleen and its relation to other diseases is no exception to this rule. The book is most interesting and full of suggestions that give much food for thought and inclines one to regard this long neglected and little understood organ as worthy of more careful study.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON MEDICINE.

Stated Meeting, Held February 21, 1922.

DR. RUSSELL L. CECIL IN THE CHAIR.

The Constitutional Symptoms of Tuberculosis.—Dr. ALLEN K. KRAUSE of Baltimore, Md., presented this communication, in which he stated that the constitutional symptoms of tuberculosis should not call for description before an audience of this character. They were the evidences of intoxication born of the infection, expressed as unwonted fatigue response to even normal stress; overirritability of the nervous system, especially the autonomic part of it, with consequent disturbance of the circulation and digestion; fever, unusual daily range of peripheral temperature, yet frequently disregarded; loss of tone of the skeletal muscles, and undernutrition. There were not a few other constitutional symptoms, but those mentioned were the more common and prominent ones. One should not bear too hard on the conviction that regarded what might be called fatiguability as the leading constitutional symptoms of tuberculosis. A diagnosis of tuberculosis could not be made with finality by anyone, unless the existence of infection was proved by physical or *x*-ray examination, or by tuberculin or investigation of infected material. Nevertheless, a diagnosis of tuberculosis now demanded more than a demonstration of infection. In every case it was called upon to answer the question whether the infection was active, in the sense of whether it was causing physical disability or contributing to it. This question would be answered, one way or the other, only by the presence or absence of constitutional symptoms. And constitutional symptoms were no less momentous in the prognosis of tuberculosis. To quote Brown, "The pulse rate, together with the temperature and weight, formed the prognostic triad." Any statement, such as was frequently and loosely made, that the intoxication of tuberculosis was brought about by toxins of the tubercle bacillus was marred by the stigma of attributing plain effects to specific causes which were so obscure that the most exhaustive research had failed to indicate that they existed; indeed, it had suggested the contrary, namely, that there were no toxins referable to tubercle bacillus. However, tuberculous intoxication was real enough; and if it was not due to bacillary toxins, to what then was it due? The paper was concerned with the discussion of this question. Eleven years ago the writer put forward an hypothesis of tuberculous intoxication in disease and during the tuberculin reaction which made anaphylactic hypersensitiveness the underlying factor, and attempted later to prove the hypothesis by experiment. The latter proceeded from the premise that if intoxication was the result of an anaphylactic antigen-antibody reaction, through the absorption of noxious focal substances formed and released during the reaction, then these substances would be present in excess in foci undergoing tuberculin reaction and be capable of demonstration through their toxic effect on normal nontuberculous guinea pigs. The results of these experiments indicated that reacting tuberculous foci contained substances which were noxious for normal animals; but nothing could be read from the experiment to suggest that materials from foci at the height of reaction were more abundant or poisonous than those from foci that were just beginning to react. It was therefore decided to perform the same experiments with substances from normal nonreacting foci, in order to observe whether these were also inherently toxic for normal animals and to what degree. The outcome from these experiments compelled the belief that any tissue material, if in proper physical condition, and if put into the circulation in large enough amount in a given time, would poison an animal. To produce appreciable intoxication the material must be so constituted as to be capable of entrance into the circulation, and it must enter the latter in sufficient quantity in necessarily short time. Under these conditions any or all tissues, normal or pathological, might poison the body; no intermediate mechanism such as the operation of the hypersensitive state, was necessary. It was very likely that the same factors were at work to bring about the well-known primary intoxication which might follow extensive burns, or severe comminuted fractures, or surgical operations without infection. It would seem that the intoxication of tuberculosis in the natural evolution of the infection was in large part a nonspecific process, brought about by the absorption of material from foci in amounts large enough to produce symptoms, and no doubt varying with the individual animal. The focal materials which were poisonous were derived from the constituent cellular elements of tubercle, rather than from bacilli. Yet to deny that bacillary constituents did not or might not participate in the intoxication of tuberculosis was to disregard outstanding features of tuberculous infection which were well known to experimenter and clinician. If an animal with tuberculosis, even with relatively slight and nonprogressive infection, was reinoculated with living tubercle bacilli, it fell acutely ill. Constitutional symptoms became manifest within a few hours after inoculation and continued for a day or two, when the animal either died or started on the road to recovery. If autopsy was performed at the height of illness or after the natural death of the animal, two types of lesion were found. These were: (1) Inflammatory reaction of the old foci of disease resulting from first infection, and (2) acute inflammation of tissues at points where the reinoculated bacilli had localized. Living bacilli would act upon existing foci in the same manner as would tuberculin; that was, they would cause focal reaction and consequent general reaction with constitutional symptoms. To this extent they might conceivably contribute to the production of acute illness which followed reinfection. The writer's net impression, after having observed the reactions of many hundreds of tuberculous guinea pigs, both to living bacilli and to tuberculin, was that the intoxication after reinoculation with bacilli included elements which could be explained only by attributing some of the effect to the direct influence of bacillary constituents. This type of intoxication was apparently something a good deal different from the intoxication of ordinary, chronic, focal tubercle. It was encountered clinically at its best in those persons who, from apparent health and with no antecedent history of manifest tuberculosis, were suddenly stricken down with acute tuberculous pneumonia and with generalized miliary tuberculosis. The pathogenesis of these cases postulated that in every instance they were autogenous reinfections from older quiescent foci. Identical bacillary eruptions might, of course, occur in patients who were being treated for tuberculosis of whatever type, and the result would be the conversion of active, chronic tuberculosis into acute tuberculosis. The course of active tuberculosis in itself represented, no doubt, a well-nigh irresolvable complex. There were no doubt cases, many of them, which during their entire period of activity evolved and receded without bacilli being conveyed to points outside of the active focus and setting up reinfection elsewhere. There were other cases again, many of them, in which it was plain that massive reinfections, localized or disseminated, were taking place. There were still others, perhaps the majority of cases, in which the infection progressed through reinfection, occasional or frequently repeated, by comparatively few bacilli, which had been transported by way of lymph or blood or visceral duct. In all three types of cases it might be postulated that intoxication would take place from nonspecific focal materials. Dr. Krause stated that he was inclined to believe that acuteness of constitutional symptoms always meant reinfection, that was, the infection rapidly enlarging its boundaries and extending into healthy tissue, or infection conveyed from one point to another. This conception of constitutional symptoms gave one, at least, a perfectly rational idea of the operation and value of rest in the therapy of the disease. The day had long passed when one must defend rest as our one essential weapon to combat active tuberculosis, whether it be the bodily rest of partial or complete confinement to a reclining chair, or the local rest of fixation for a tuberculous joint, or of artificial pneumothorax for a diseased lung or of the voice at

a whisper for laryngitis. It could be taken as a good working rule that, under conditions of complete physical rest, as nearly as these were attainable, tuberculosis, unless very acute and active, took care of itself extraordinarily well.

The Mechanism of Compensation in Pulmonary Tuberculosis and Its Relation to Physical Findings.—Dr. H. A. BRAY of Ray Brook Sanitarium made this presentation, which he illustrated with lantern slides. He explained that he employed the word compensation in a limited sense to designate the means adopted by nature to overcome the loss of lung volume incident to tuberculosis. In this disease loss of lung volume occurred frequently and might be recognized by chest deformity, including spinal curvature, compensatory empysema, and displacements of the diaphragm and mediastinum. These compensatory factors were not infrequently impaired in function, due among other conditions to rigidity of the chest wall preventing its retraction, to pleural adhesions limiting the mobility of the diaphragm and mediastinum, and to inherent differences in the capacity of the lung to compensate. The degree of functional impairment might be extreme, yet with few exceptions, compensation was adequately established. This result might be attributed to the close interrelationship of function existing between the factors. Radiograms were presented illustrating the participation of the diaphragm and mediastinum in the compensatory process and their interrelationship of function. It must be remembered, however, that in this respect, lung emphysema and chest deformity played an equally important rôle, evidence of which might be partially or completely lacking on the plate. Elevation of the right diaphragmatic leaf was the essential factor in the readjustment incident to the pathological decrease in volume of the right lung. Attempts to establish the extent of pulmonary disease by the degree of diaphragmatics displacement, without consideration of other factors, frequently proved fallacious. The physical signs associated with upward displacement of one of the leaves of the diaphragm might be confused with those of pleural effusion and at times other methods were required for their differentiation. Where the left leaf was elevated cardiac disturbances might occur. From a casual study of the mediastinum it would be difficult to realize the extent to which this structure might be deflected by pathological conditions arising within the chest. Dr. Bray explained the movements of the mediastinum during respiration and showed that displacement of the mediastinum toward the center during inspiration should not be considered a manifestation of disease, as held by some observers. In disease the deflection might be accentuated and attributed to a tug on the mediastinum from a relative increase in the negative pressure due to delayed and improper expansion of the involved lung. Caution was required in the interpretation of deflections by the radiogram since the condition might be simulated by an artefact due to rotation of the patient at the time of *x*-ray exposure. Fluoroscopic study was essential in the study of the movements of both the diaphragm and the mediastinum. Deflection of the mediastinum might considerably modify the physical findings because of the altered anatomical relations. In particular, the percussion note over the deflected mediastinum was markedly impaired, which might suggest a dense lesion. Furthermore, on auscultation, because of the associated deviation of the trachea, and other causes not at present understood, the sounds over the diseased lung were decidedly accentuated, thereby tending to confirm the misinterpretation. When employing physical signs to determine the presence of mediastinal deflection, it was well to remember that the signs were more evident anteriorly, owing to the relative thickness of the musculature and the greater volume of the interposed lung posteriorly. Deflection of the mediastinum had been confused with hilum enlargement and cardiac hypertrophy. Many of the symptoms of cardiac hypertrophy were similar to those of cardiac displacement, thus adding to the difficulties of diagnosis. In other instances the diaphragm and mediastinum might reciprocate about equally in compensation, as shown by a radiogram in which the left leaf, normally below, was placed on a slightly higher level than the right, and the mediastinum was shifted correspondingly to the same side. In discussing emphysema, Dr. Bray recalled that pathological emphysema occurred in the zone of the disease, physiological hypertrophy in the health parts of the lung. In the latter the integrity of the alveolar wall was retained and with recovery the lung returned to its normal state. In this respect it contrasted with pathological emphysema which represented a permanent change in the lung structure. It was important to remember that the presence of marked compensatory emphysema might mask the other physical signs even in the presence of extensive involvement. In patients presenting extensive involvement of one lung, the scattered infiltration in the opposite lung usually remained concealed on physical examination owing to the associated hypertrophy. The thorax, owing to its rigidity, did not respond as readily as did other factors to the demands of compensation, an observation supported by noting this sign in pulmonary disease where rapid loss of lung volume occurred; as for example, in lobar pneumonia. A study of the accompanying radiograms established the existence of an intimate reciprocal action between the diaphragm and mediastinum in compensatory readjustments of the organs within the thorax. Mobility or immobility of the mediastinum was important in determining the position of the diaphragm and vice versa. Though more evident on physical examination, compensatory emphysema and local retraction of the chest wall played a similar and equally important rôle. In tuberculosis these factors varied in their function of compensation. To this fact might be attributed the impracticability of previous attempts to correlate the extent of pulmonary disease with any one of the compensatory factors. While many important points had necessarily been omitted from the discussion, sufficient data, Dr. Bray stated, had been submitted to establish the practical value of a study of the mechanism of compensation in the physical examination and in the interpretation of the chest radiogram.

Treatment of Tuberculosis by Immobilization.—Dr. JAMES ALEXANDER MILLER read this paper, which was illustrated by lantern slides. He stated that no principle of treatment in tuberculosis was of more value than that of rest. General bodily rest had been the accepted method of treatment in all cases of active pulmonary tuberculosis for a long time. Local immobilization in other forms of tuberculosis, as in joints or in the spine, was also of recognized value. It was only within the last ten or fifteen years that the same principle had been applied to the local treatment of certain forms of pulmonary tuberculosis. In general it might be considered that in certain classes of cases it had been demonstrated that immobilization of the chest was a very great aid to arrest the activity of the lesion and in a very considerable proportion of otherwise hopeless cases would restore them to economic efficiency. The definite indications for artificial pneumothorax were: (1) in chronic cases, largely if not entirely unilateral, in which the usual methods of regimen had failed; and (2) in cases with repeated large hemorrhages, in which the particular lung which was the source of bleeding could be definitely determined. There was a growing tendency to use this method in cases that had not yet become chronic or advanced. The dangers of the treatment had been greatly exaggerated, and in competent hands and with proper precautions could be reduced to a minimum. Rupture of adhesion and tearing open of the lung was a real danger, but should scarcely, if ever, occur when proper care was exercised. In cases of so-called flapping mediastinum the treatment must usually be discontinued. The results of pneumothorax in general showed that serious symptoms might be controlled, general health materially improved, and the duration of life definitely lengthened in somewhere between 25 and 50 per cent. of the cases treated. Adhesions played an important rôle in the results to be expected from artificial pneumothorax treatment. Methods for severing these adhesions had been suggested. Jacobæus of Stockholm had developed what apparently was the most satisfactory method and reported excellent results. The thoracoscope as developed by him was merely a modified cystoscope, and by it it was possible accurately to diagnose the position and extent of such

adhesions and to guide a thermocautery introduced through another portion of the chest wall in such a way as to sever the adhesions from their thoracic attachment without danger of hemorrhage or rupture into the lung. With experience this method was destined to be very valuable in diagnosis, as well as treatment of adhesions. Dr. Adrian Lambert and the writer were fortunate enough to secure one of these instruments and were gradually acquiring some experience in its use. In cases unsuitable for pneumothorax because air could not be introduced into the pleural cavity on account of extensive adhesions, and also in certain others in which only partial collapse could be obtained, radical thoracoplastic surgery had been attempted. The operation in general consisted in the resection of the upper ten ribs, taking out 10 to 12 cm. of the lower ribs and gradually diminishing the amount of resection to 2 or 3 cm. from the first rib. The operation might be done with entire satisfaction under local anesthesia, though Dr. Lambert preferred a general anesthetic. The mortality, of course, was high, not from the operation itself, but from the bad surgical risk which this class of patients represented. Dr. Adrian Lambert and Dr. Miller had begun the study of suitable cases at Bellevue Hospital, and Dr. Lambert had operated upon a few with encouraging results. The future held interesting possibilities in the development of these methods in the treatment of tuberculosis.

Dr. S. ADOLPHUS KNOPF said that when he was invited to discuss these three papers he knew that he could not add anything to the wisdom of these three wise men. There was nothing to add in reference to the papers, except to say in connection with Dr. Miller's remarks on artificial pneumothorax, that it was always advisable to warn the patient and his family beforehand that they should not expect too much from this procedure so that they would not be disappointed if it failed to do all that might be hoped. Dr. Knopf then went on to speak of present-day tuberculosis problems. He stated that the tuberculosis problem in Europe outside of England was appalling. In 1913 there was a tuberculosis mortality in New York of 171, during the war 164, and after the war 109 per 100,000 inhabitants. In Vienna the tuberculosis rate before the war was 302, during the war 425, and after the war 405 per 100,000 inhabitants. In Poland during the war it was 1164 per 100,000, and it was not yet reduced. This gave an idea of what the war had done to increase the tuberculosis death rate in Vienna and Warsaw. How much Russia, which always had the highest tuberculosis death rate, had lost in men and women and children under Soviet rule would never be known. In the United States the death rate from tuberculosis had decreased in spite of the war and the influenza epidemic. When one read the favorable reports he was apt to think that we need no longer worry about this disease, and that he might presume that in a decade or two at the longest the disease would disappear from among us. Alas, that goal was very far from us. More disturbing was the fact that in this city 14,000, or 52 per cent. of the total number of tuberculous patients, were not under medical care. It was to be hoped that the great number of tuberculous individuals without medical attention would receive attention and be placed in a hospital or under the care of a physician who would show them how to obtain at home conditions similar to those of a sanitarium. Besides tuberculosis in the civil population there were a large number of tuberculous ex-soldiers and sailors. However, the number of cases of tuberculosis among soldiers, either during or after the war, was indeed comparatively small. That was a fortunate circumstance due to the care exercised by the draft boards and examining boards in camps. Nevertheless, there were many ex-service men suffering from tuberculosis, and a further increase in the number was anticipated. In answer to the criticism of conditions at some of the hospitals caring for tuberculous ex-service men, it must be remembered that some of these buildings were very hastily constructed because of urgent need during the war, not thinking that they would be permanently occupied by tuberculous patients. The criticism in regard to the lack of care of tuberculous ex-soldiers, he felt, had very little foundation. The officers in those institutions had nearly all seen overseas service, were specialists in their work, and devoted to their task. Dr. Knopf said he had visited some of these Government hospitals and could speak from experience. In many of these hospitals the patients were given more liberty than in civilian tuberculosis hospitals. Some might think this was to be deplored, but the psychology of the ex-soldier was different from that of the civilian patient. An economic cure was looked for, and by that was meant putting the patient in condition so that he could work a few hours without collapse. The friends of the ex-soldier could rest assured that the United States was giving these men every care; they were better cared for than they would be in municipal and private institutions. Looking forward, the question might be asked as to what the prospects were of ultimately controlling the great white plague. The tuberculous individual, no matter what his circumstances, could nevertheless be greatly helpful in many ways. He could help by not being a source of infection; he could help by implicit obedience to the instructions of his physician. However, his greatest field of usefulness lay in his contact with his fellow patients. He could be cheerful and hopeful and encourage his fellow sufferers, instead of speaking of his unpleasant symptoms. He should refuse to talk about his troubles and speak only of things cheerful and hopeful. In that way he could help both himself and others. At Fox Hills Hospital, there were 700 ex-soldiers, and he had never seen a more courageous, helpful, sympathetic group of men than those tuberculous ex-soldiers. There was every reason why they should be hopeful, for tuberculosis was not a hopeless disease. Not only early, but many advanced cases, made favorable recoveries with rest, with the treatment of annoying symptoms, and under careful medical supervision, but where the patient was most hopeful and most contented he usually made the most rapid recovery. Finally every patient should endeavor to give as little distress as possible to others, by learning to control his cough and telling others that the cough was more or less the result of nervousness and could be controlled.

Dr. CHARLES E. DARROW of Rochester, N. Y., stated that he accepted the invitation to take part in the discussion with great reluctance, as he was not going to discuss the papers that had been presented, and with marked diffidence on account of the fact that he was going to bring forward for consideration a serum for the treatment of tuberculosis. We all looked askance at any remedy proposed for the cure of tuberculosis, because disappointment had so often followed close on the heels of hope, that he who suggested a new remedy must either be endowed with great temerity or a strong belief in justice of his cause. More than forty years ago, when he left New York City to begin the practice of medicine, the current advice given a tuberculous patient was an immediate change of climate, the substitution of an outdoor for an indoor life, the avoidance of physical fatigue and mental worry. It sounded like a death knell to the great number of tuberculous patients who were unable physically or financially to follow that advice. To be sure, Dr. Trudeau was beginning his pioneer work at Saranac Lake, but the sanatoria for the treatment of this disease were few and far between, so that the outlook of impecunious patients was very gloomy indeed. About twenty-five years ago the strange anomaly existing between two domestic animals in regard to the incidence of tuberculosis kept forcing itself upon his attention. The horse and cow, pastured in the same fields, housed under the same roof, would seem to present ideal conditions for the transmission of a communicable disease from one to the other. Yet the cow was frequently infected and the horse remained practically immune against tuberculosis. The question suggested itself as to whether there was anything in the serum of the horse's blood that was inimical to the development of the tubercle bacillus. A number of guinea pigs were inoculated subcutaneously with successive doses of normal horse serum, and then inoculated intraperitoneally with tubercle bacilli. The results seemed to justify the belief that normal horse serum might be of some service in preventing the development of tuberculosis. At that time very little was known about

anaphylaxis and nothing about the mode of its prevention. It was deemed necessary to give 20 c.c. doses to the human being, and on account of the size of this dose a long interval (ten days or longer) was allowed to elapse before it was repeated; all patients given the second dose had more or less violent anaphylactic reactions, some very startling. Therefore, it was not strange that most patients refused the third dose, saying that they preferred to die more slowly. Two patients, however, continued the treatment. One was at death's door, but lived two and one-half years after the first injection. She perhaps might be living to-day but for the fact that the treatment had to be turned over to a physician who was not interested and failed to give it properly. The other patient was a man absolutely given up by the experts at Saranac Lake and elsewhere. He was alive and perfectly well to-day, and carrying on a large and active business. However, it became apparent from these experiments that this treatment would never become popular, unless the strength of the serum could be increased so that the effective dose could be smaller, and unless anaphylaxis could be prevented. A large amount of experimental work was done. It was finally found that by inoculating normal horse serum with diphtheria toxin and incubating it for three months at a temperature of 37.25° C., the antitoxic property of the serum (roughly speaking) doubled. This led to the hope that the antagonistic property of the horse serum against the tubercle germ might be increased in a similar manner. Varying quantities of normal horse serum and the serum of a tuberculous cow were mixed and incubated for various periods. Then normal horse serum was mixed with different quantities of the various tuberculins, and these mixtures were incubated for varying periods of time until fifteen years ago, when a formula was evolved which has been used without change up to the present day. This consisted of the addition of 0.02 c.c. of B. F. (human), 0.02 c.c. of B. E. (human), and of 0.02 c.c. of B. F. (bovine). Thus it would be seen that 0.06 c.c. of the combined tuberculins was added to each c.c. of normal horse serum. This mixture was then incubated for three months at a temperature of 37.25° C.; then passed through Berkefelt filters, and had added to it ¼ of 1 per cent. of tricresol. The final product was used in doses of from 1 c.c. to 1.5 c.c. subcutaneously. These doses were given three times during the first week, or the intervals between subsequent doses could be of any length that was considered desirable on account of the condition of the patient, without fear of producing any reaction either anaphylactic or otherwise. This mixture after incubation certainly contained no free toxin, for the reason that it produced no general reaction whatever in a tuberculous patient. Its use in cases of early tuberculosis had proved entirely successful, that was to say, all these cases had recovered. In cases of advanced tuberculosis, two out of three had made satisfactory recoveries. In very advanced tuberculosis there had been an occasional success. In glandular and other forms of localized tuberculosis the treatment had proved very successful. Dr. Darrow in closing said that he knew there were theoretical objections to the possibility of developing a serum for the treatment of tuberculosis, but nevertheless, this treatment has been on trial for the last fifteen years, and had been successful both in his hands and in the hands of several other physicians. At first it was used only in cases that were unable to avail themselves of the standard modes of treatment, but as success followed success, he had extended it to all cases of tuberculosis that had come under his care. He hoped that the profession at large would give it a trial upon a sufficiently large scale to prove its value beyond any peradventure.

Dr. MAURICE FISHBERG stated that usually in this section those who discussed papers confined themselves to the subject under consideration. He was not inclined to discuss the figures as to the prevalence of tuberculosis that had been presented, or the new cure for tuberculosis, but he did know that they had listened to three very excellent papers. Dr. Krause had placed emphasis, as it had recently been placed, on a consideration of constitutional symptoms. That point had been well brought out by Dr. Krause, and he had also covered the theoretical basis for that emphasis. He had frequently deplored the fact that too much reliance had been placed upon physical signs, and felt that we might have been better off if Laennec and Auenbrugger had not discovered percussion and auscultation, and if we had no *x*-rays. Of course, he had seen cases in which the opacities on the *x*-ray plate had been an aid in diagnosis, and physical diagnosis was useful. But at the present time he felt that the constitutional symptoms amounted to more than the physical signs, or *x*-ray plates. We knew the theoretical basis for symptoms and he would not enter into that phase of the subject. Dr. Bray had taken the same point of view. Dr. Fishberg said he was glad Dr. Miller had shown the limitations of artificial pneumothorax. Hardly three to five per cent. of tuberculous patients were suitable for pneumothorax and between 30 and 35 per cent. treated by this procedure were said to have recovered. Forlanini in his report did not say that 37 per cent. recovered but that 67 per cent. died. He did not say whether those patients were able to work, or not. At the present time they had 136 tuberculous patients at the Montefiore Home and 40 to 45 per cent. were able to do light work, though they had not received artificial pneumothorax. He had witnessed very dramatic effects from artificial pneumothorax and he had also seen very dramatic tragedies. He had seen patients with progressive lesions and a temperature of 103° or 104° F. drop to normal following artificial pneumothorax, and the patient would go along nicely for eight to twelve months and then there would be a perforation of the lung and a pyoneumothorax, and the patient would die in great agony. As to Dr. Jacobæus, he performed his operation on one patient at Bellevue Hospital and on one at Montefiore Hospital, with a 50 per cent. mortality. At Montefiore, the patient was a young man who had a pneumothorax and was doing well. Against Dr. Fishberg's better judgment he was submitted to the operation and died four days later. One should never judge of a procedure by a single case. Nevertheless he was discouraged in regard to Dr. Jacobæus' operation. He had looked up the literature and could not find that Dr. Jacobæus had reported a single fatal case, and he doubted whether this was his first fatality.

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

AN INDEX OF TREATMENT. By Various Writers. Edited by ROBERT HUTCHISON and JOHN SHERREN, and Revised by WARREN COLEMAN. 1029 pages with illustrations. Price $12.00. Published by William Wood & Company, New York.

THE MEDICAL CLINICS OF NORTH AMERICA. Bi-Monthly. January issue. Vol. 5. 214 pages with illustrations. Published by W. B. Saunders & Company, Philadelphia, Pa.

TYPHUS, ETIOLOGY AND PATHOLOGY. By S. BURT WOLBACH, JOHN L. TODD and FRANCIS W. PALFREY. 222 pages with illustrations. Published for League of Red Cross Societies. Published by the Harvard University Press, Cambridge, Mass.

LE DIABÈTE SUCRÉ. By F. RATHERY. 294 pages without illustrations. Price 7 fr. Published by Ernest Flammarion, Paris.

BOOK ON THE PHYSICIAN HIMSELF. By D. S. CATHELL. 359 pages without illustrations. Published by the Author, Baltimore, Md.

PRACTICAL ORGANOTHERAPY. Third Edition. By HENRY R. HARROWER, M.D. 416 pages without illustrations. Published by The Harrower Laboratory, California.

THE PSYCHIC HEALTH OF JESUS. By DR. WALTER E. BUNDY. 299 pages without illustrations. Published by The Macmillan Co., New York.

Medical History.

NEW BOOKS AND OLD.

XXVI. JAMES ATKINSON AND HIS MEDICAL BIBLIOGRAPHY A B.

By JOHN RUHRÄH, M.D.,

BALTIMORE, MD.

LET no man think he is buying a dull book if Dame Fortune smiles upon him and throws in his way that most remarkable of all medical bibliographies, that by James Atkinson, Medical Bibliography A B. He got no farther in the alphabet. In fact I do not think he ever had any intention of attempting more but made his string of authors and titles serve as frame for some of the most amusing comments ever made apropos of the dry as dust authors he so often considers. He says of himself and his writings "I am not the sort of fellow to undertake to write a sentimental journey; and, therefore, wanting better amusement, and through mere incident, I stumbled upon the dry, dusty, tedious, accursed, hateful, bibliography. It may, perchance, mollify duller than ordinary hours. It may kill time more circuitously, than in a direct manslaughtering way. And in a degree, which, if enforced, would kill the devil. But of profit, it is seldom productive. Should only one reader, even a destitute Unitarian, upon the occasion, honor my pages with his patience; this patience may inform him, and to his cost he would learn, how much or how little of this virtue may be required to effect the smallest impression upon a legitimate rock of literary granite: in distinction, to the task of his patience, in wading through the alluvium of my nonsense. And yet unless his instrument or perforator be smeared with a drop or two of the balsam of nonsense, he may labour through his days, and labour through his nights, but will never drill through the impenetrable medium of a dense and dolorous cloud of bibliography. He must at length be contented in concluding with me that bibliography is a doleful ditty. Or as Lambinet has it, "on ne peut se dissimuler que le plupart des ouvrages bibliographiques ne soient d'une secheresse soporifique (snort and echo) soporifique!"

A great fellow, a friend of Sterne, whose style he has unconsciously imitated. I imagine a thoroughly delightful man whom I have taken so to heart on short acquaintance that I shall find it hard work to return the volume which I should like to place next to my "Tristam Shandy" and my "Sentimental Journey." Perhaps some day Dame Fortune will smile upon me. Why this work has never been reprinted is a mystery to me. Dr. Osler said it was the most fascinating book on the subject ever written. I know of no book more amusing, excepting always "Tristam Shandy." If you like Sterne you will like Atkinson; if you do not like Sterne you will not like Atkinson. As I like Sterne immensely I would undertake the task of editing a new edition could an enterprising publisher be found. Trimmed of the bibliographic references and with some omissions the book would not be unwieldy and I believe its publishing would be fraught with little danger of financial loss.

Atkinson was the son of a physician of York. He himself for a score of years was York's most successful practitioner and from the title page of his book we learn that he was "Surgeon to H. R. H., the late Duke of York"; "Senior Surgeon to the York County Hospital and the York Dispensary;" and later Atkinson is mentioned in "Notes and Queries," 5th series X p. 474 and in Dibdin's "Bibliographical Tour."

Of his life we know little though if one were in York doubtless considerable biographical material could be discovered. He was respectable and respected and when he died in 1839 the York *Herald* gave him a good notice, a recommendation to St. Peter as it were, saying among other things: "Ever prominent with his aid at every benevolent institution, he possessed the blessing of the poor and afflicted whilst among them, and will live in their grateful remembrance beyond the grave." He was Vice President of the Yorkshire Philosophical Society. He was an enthusiastic member of the Musical Society and possessed a fine talent for drawing, no less than eight portraits by him hang in the National Portrait Gallery.

Atkinson has a curiously facile gift of expression and as one reads one finds old friends turn up again. The very first sentence in the preface was a favorite saying with Osler. Let me quote part of the preface:

"There is not perhaps any man so good a judge of the difficulty of writing a book as an actual author. He soon discovers how many qualifications are necessary, how much science is required, and which are the points of most difficult access. He soon finds out his own deficiencies; and, as regards his powers, that some difficulties may be insurmountable. That essay, which sometimes originates in study and amusement, gets insensibly into growth, and is perpetuated. For, having been undertaken in the spirit of an inquirer, it is frequently carried on in the capacity of a student. This student, however, soon assumes the master, and pronounces his decisions on critical subjects, as authoritatively as if all learning and languages were at his fingers' ends."

The book of which I write and from which I shall quote extensively is a single volume, not too large to hold easily and can be read in two evenings, if perforce it must be done so rapidly. Such a method with such a book is much like drinking a bottle of liqueur Scotch at two sittings, rather too stimulating but one would do it were it to be taken away the third night, at least we unregenerate ones who scoff at Volstead would do it. The book has a motto, "Take me for better for worse, for richer for poorer," and is dedicated "To all idle medical students in Great Britain." Then follows the word "Sit" and a drawing of that part of the skeleton known as the sacrum. I puzzled over this somewhat but when I remembered what an inveterate punster our author was, light began to dawn. In his short article "Bigliographical References" included in the volume at hand he says:

"For my part, although my sacrum and crista Ilei are no harder, or become more cartilaginized by book-incubation and study than my neighbors, yet I have known the time when a very thin old black-lettered book has made my dull bones ache most confoundly and after all, to very little purpose, and much less entertainment. And I should, out of mere curiosity, like much (in due, very due, time) to possess Mr. Dibdin's Osso Ischii, for my museum, as a vermin specimen of a literary incubator. By this sort of industry, how-

ever, we are taught to understand, that the duties of a critic, even to a competent sitter, are not so easily accomplished as 'le moyen de faire eclore'; or, by hatching fresh eggs in a graduated oven."

Is it not delightful? I should like to have a portrait of the fellow to see what manner of man he was. Of this subject of portraits he says in his conclusion:

"Having accomplished an imperfect, dry, and verbose Bibliography; it occurred to me, during the progress, that an illustration of Authors by their Portraits, as is frequently done, might be an useful and pleasing addition.

"In consequence, I have, for many years, collected Portraits of Medical Authors generally. And I have felt great satisfaction and instruction in confronting their works, their lives, and their faces. Casts of features, of thought, and expression, sometimes, though rarely, coincide. Whenever, however, it does happen, the coincidence and gratification are synonomous. Occasionally, also, as an amusement, I have sketched brief notices of the Medical and Literary History of those authors, after the example of other Biographers. So that when prosing over the heavy drag of some of those writers, and their editions, a mere glance at their portraits has occasionally awakened and delighted me: discovering, possibly, in their countenances traces of intellect which I did not see before, nor otherwise should have seen. Therefore I invite the student to follow me in this mode of interpretation; to collect and to arrange; to contemplate the man specifically in his mind; and that same man in his portrait.

"Whether I may be induced, in future, for the advantage of the young collector, to publish, after the manner of Granger, a partial catalogue of the different heads and portraits I possess; their respective eras; the number and variety of the same; and the names of the painters and engravers, as far as I know, may depend on circumstances. For I own that frequently I am out of love with everything I undertake. And am not unapt, by virtue of long living, to fall into that despondency and unchristian-like opinion; that the world is a naughty jade not worth serving!"

He starts off with Aristotle and then goes on alphabetically through the As and Bs. One of course does not go to Atkinson for scientific bibliography; others have done much more and much better in this line; one goes to him to be amused, for witty chit-chat about the authors and their works and other authors and their works far beyond A and B. In fact he gives a list of "A few respectable authors on theory and physiology, indiscriminately noticed." This comprises some hundred names, some well known, some familiar only to medical bibliomaniacs.

Atkinson must have been a collector of considerable ability even if his taste ran largely to several of the early printers. He pokes fun at the collectors who never read their books, a goodly crew even today.

"I am sorry to observe that in my Aldus' edition, of 1518, the book-worm has taken care not to indulge much, either in sleep or dreams. For he has made some very intrusive perforations. And I wonder, in what part of this book-worm's head, the most ingenious philosophers, the Craniologist, would affect to look for the organ of destructiveness. If all collectors of books were not more to blame than the book-worm, the worm would never have been there. Of all creatures, he is the most peaceable and retired. And nothing in life he detests so much, or is so fatal to him, as having a dust kicked up in an old library."

It is surprising how little comment such a writer as Atkinson admits of, I will not say needs. He needs none of course but I must not delay. How many have ever heard that the Eustachian tube was mentioned by Alcmaeon some five hundred years before Christ.

"If this author was the disciple of Pythagoras, in the 35th age of the world or about 497 years before Christ, as is reported; it well becomes me to beg pardon of his Manes, for not having already introduced him.

"He is mentioned as being the first Veterinary Surgeon, who wrote on the anatomy of animals. And was possibly a relation of the famous Milo, of Croton, who could bear a bull (I don't say bull and bear, 'ne quid nimis!') upon his shoulders. Milo might have been the apprentice of Alcmaeon; and now and then, pro re nata, in the way of his profession, have had occasion to carry a sick bull into the surgery to his master. Let us here observe, in a parenthesis, how surprisingly one trifling incident of history may clear up another, and the son of Alcmaeon shall never repine.'

"Goelicke makes a question, whether, in consequence of the observation of Alcmaeon, that goats breathed through a passage from the palate to the ears (and has not man, a more modest animal than the goat, the same?), the eustachian tube might have been known to him. Assuredly, if Alcmaeon knew that goats did breathe in that way, he knew there was a passage. And as he had not given it a name, Eustachius chose so to do—after himself, *i.e.* the Eustachian Tube.

"Was there not the via Appia, in Italy, and several other viae, named after their then respective masters or constructors? Nor was it a matter of course, that not any of these viae should have existed before there was a name affixed to them. But Plagiary does not at all appear to have formed any part of the character of Eustachius.

"Eustachius had a much broader passage for his fame than the iter a palato ad aures."

Averroes of Cordoba comes in for a small quotation which has been marked in the borrowed edition on my desk, doubtless by the owner whom I fail to name. I am afraid the censor might object if I translated it—but I forget they do not censor medical books and the flood of pornographic literature masquerading as sociology is remarkable. Last summer I sat next to a well known writer at one of those luncheons given weekly by certain clubs, suspiciously like uplift organizations, which now abound in this peaceful land. I started a story about alcohol and other things. "I beg your pardon," said my neighbor, "In these meetings we never mention alcohol or women, but," he added smilingly, "we can discuss sociology, go on with your story." Oh the delightful hypocrisy—most of them do not see it and the others grin. But to get back to the story, it is a good one:

"The edition of 1542, of the Colliget, may be more barbarous than some of its contents; for in 'De Sanitatis Functionibus,' of the former edition, this author appears equally good tempered, as credulous, which is a quality ill adapted, and seldom seen, in a parish officer of the present day. 'Porro Matrona quaedam a regione aedium nostrarum, habitabat, juravit nobis vel conceptis verbis, cum balneum intrasset, in quo improbi quidem homines antea dum lavarent, semen genitale profudissent, statim concepisse: quod etsi incredibile videretur, fecit nihilominus vitae ilius anteactae integra atque inculpata castimonia, ut fidem verbis suis adhiberem.'—Vide ed. 1537."

Of that patron saint of lovers of good brandy, the first distiller, or at any rate the first to publish the use of Aqua Vitae, Arnold of Villanova ought in these dry days be given his due. His biographers always fail. They go off on a tangent missing much that should receive favorable comment. I shall have to try some day to remedy all this. Atkinson no better than the rest in this direction, but much more amusing, makes some comments, à la Sterne.

"Arnoldus, de Villa Nova, was, what is usually stiled 'rather a comical fellow.' He could not be content with his proper profession, but must undertake to dogmatize (I do not mean to go a hunting) and to write on theology. But in 1317, he was called to account, and his works and errors were condemned by order of the brother preachers at Tarragona; he was hence obliged to quit Paris (who would not quit such a place?), and, being sent on an embassy, to Pope Clement the 5th, he was unluckily drowned at sea.

"The Pope ordered De Profundis's for him, (too shallow resources I doubt, considering the depth of water,) and much regretted the privation of a work which Arnoldus had always promised him. He inserted this into his Pontifical letter, of the 19th of May, 1312; endeavouring by this means to recover it, if in existence; but sorry I am to record, that neither was the Pope's Pontifical letter able to produce the work; nor, the De Profundis's to bring Nova de novo, to dry land; so both were lost.—No dry joke, at any rate, unless to his brotherhood.

"The poor author had been condemned by his brethren, (Cannibals), on nineteen different articles, and if they had it in their power,—say on the thirty-nine, one of which was, for foretelling that the world would be at an end in thirteen hundred and thirty-three. They were, therefore, thirteen hundred thirty-three times obliged to him, for allowing such rascals time to prepare themselves; and the remaining articles, (nine of which are in the Castilian language, and five in Latin, as seen in a MS in my edition), were all alike condemned by them; and of course without benefit of clergy; nay, even Pope Innocent the 2nd, (don't suppose he was only the second innocent Pope, for they are all innocent), in 1539, by no means thought Villa Nova's works so innocent, as to allow his clergy to read them;—but mark ye now, they stole a sly peep at them whenever they could, for he was a tasty Villa, in his descriptions which, ad Morbos Mulierum spectant; and Monks are mortal men. Nova, however, non obstante, was, pro Haeretico, to the black dog damnatus,—which, as an anathema, is a serious business.

"SOLILOQUY.

"It is to be feared, and must be owned no doubt, that in many opera, where Abbots and their Similes grace the pages, there exists, in their language, a degree of pruriency, (like an esprit du corps,) which should not be evinced, either in the titles of such books, by the Abbots, or in the subjects. In this work, among others, we have instances; for who should expect in so chaste a title as De ornatû Mulierum, (into the contents of which, the vanity of the sex might reasonably induce them to inquire,) to find a recipe from Villa Nova, 'ut desiderium et dulcedo augeatur,' which has nothing to do with eating or drinking, or dress; or encore un coup, (shocking) ad virgam erigendam.'"

Of Aepinus and his book on the similarity of electricity and magnetism Atkinson has little to say but he has a great deal to say when he starts off on the subject of electricity. When I read the following paragraph I immediately thought of Dr. George Crile:

"To draw into resemblance the affinity; I would compare the brain itself to the cylinder of an electrical machine. External objects I compare to the atmosphere, from whence animal fire is collected; in the same manner as the fire is from the atmosphere or the electric. The soul I compare to the rubber, which being set in motion, by the wheel of external objects, throws the fire or ideas it collects upon the brain. The brain discharges it upon the nerves, its conductors; and the muscles and other parts become electrified bodies."

And now we must take leave of this dear old York friend, I feel as if I knew him intimately. He closes the last article on his book by saying: "It will behoove me, in common, to apply a passage, extracted from the sixth Book of the Epistles of Saint Ambrose, 'For you shall rarely find a man who is not deceived by his own writings.'" At the very end of the volume is a page of conclusion which ends:

"But a man's book is to him either like a legitimate or natural child: for however heterogeneous the constituting materials may be, or have been, the parent usually clings to his offspring for better or for worse, from natural affection: and retains to the last a selfishness of respect for it, which nature also dictates and he adopts."

Medicine in the Far East.—Professor Tuffier, the distinguished surgeon, has recently returned to Paris after a journey through the Far East. He had been invited to participate in the opening ceremonies of the Peking Medical School and took advantage of the proximity to study the condition of medicine in Japan, along the Chinese coast, and of course in French Indo-China. Of the new Rockefeller Foundation Hospital at Peking he states that it is the finest he has ever seen. Without any tinge of bitterness he seems to regard all such undertakings as in a way hostile to French prestige in this sphere of influence. The French practitioners are of a high morale but too few in numbers in comparison with the medical men from other lands, who are constantly increasing their numbers and prestige. After an appreciative account of the new Rockefeller college and hospital he mentions some of the native and other foreign medical institutions in Peking. There is a French hospital of 200 beds in charge of the Sisters of Saint Vincent de Paul, near the Cathedral. It is free to all, without distinctions of race or creed. Two French medical men are on the staff. Three of the Sisters recently perished of typhus contracted professionally. Father Henri of Shanghai has founded a chain of medical schools under French auspices for the instruction of Chinese students. This medical missionary was responsible for the excellent medical institution known as the École de médecine de l'Aurore. At Canton there are only four French medical men, but these have founded and conduct an improvised hospital-school. In Hong Kong there is but one French medical man who is in charge of a very good hospital. In Indo-China, which is a French colony of 21,000,000 people, French medical prestige is naturally high. The medical college at Hanoi is the central institution for all medical activities. The number of French medical men in the colony is so small that each man may be said to be responsible for between 600,000 and 1,000,000 natives. Native practitioners are relatively few in number. At Saigon the medical center is reinforced by the local Pasteur Institute, in charge of Yersin and another able scientist, N. Bernard. These men are responsible for holding in check and preventing the great epidemic plagues. Tuffier cites the case of a colonial French medical official of Cambodia who, when his term of service expired, entered the Pasteur Institute from choice and did most valuable work. The great curse of the country was amebic dysentery until, thanks to the introduction of large quantities of emetine, the population, once decimated by the ameba, became disinfected with surprising promptness, this mass result suggesting the similar conquest of the hookworm in the southern United States.—*La Presse Médicale.*

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REEDUCATIONAL TREATMENT OF CONFIRMED STAMMERERS.*

BY L. PIERCE CLARK, M.D.,

NEW YORK.

POSSIBLY no one can fully analyze and synthesize the complexities of normal speech. Even looked at anatomically the subject is shrouded in difficulties which arise from the uncertainty of so-called facts and the obscurity caused by a redundancy of theory. Often a clear diagram showing the anatomy and physiology of speech covers much deficiency of evidence. We may be spared enunciating here the little definite knowledge we have of the speech as a brain mechanism, as it is as yet too meagre in scope and too hesitant in final assertion. However, by recognizing our deficiencies we may forestall a displaced confidence. If we follow the more modern tendencies and recognize the faculty as having an immeasurably remote origin of self-expression in feeling and ideas in all living activities, and see how, step by step, the faculty has developed, we can grasp some idea of how difficult a comprehensive explanation must be. Speech is so much a gesture of the whole personality that it will defy analysis until we have a better understanding of character and personality. If we look at it purely as a sort of complex neuromuscular mechanism of the midbrain or even a highly trained cortico-bulbar reflex, we fail to grasp the complex association which this faculty has with all emotional expression. If we find normal speech beyond exact interpretation, we are still more confounded in the presence of its disorders.

Perhaps most children who stammer† do so as a result of inadequate early training in normal speech expression. If the defect is not deeply rooted it is soon corrected by simple processes of speech gymnastics, voice culture, and similar training too well known to warrant detailing. But not infrequently one encounters a peculiar type of individual in whom the stammering is by no means benign, and which defies all systems of mechanical correction. If even under the happiest circumstances the speech disorder is temporarily improved, the patient suffers a relapse sooner or later and becomes as bad as before speech training was undertaken. It is a wide and popular belief that in youths thus afflicted the stammering has not only cramped and distorted the personality but has actually ingrained traits of character which never would have been present but for the youth's early acquirement of his disorder. This is not so; but the innate faults of the personality become steadily worse and the more obvious as the stammering endures. That the stammering in itself can ingrain anything new not previously innate and a part of the personality, is as absurd as to believe that the neurotic constitution of the psychoneurotics is induced by their particular conflicts. It is possibly quite true, however, that the syndrome brings out latent personality defects, but it cannot be responsible for the innate foundations of these personality faults.

It would be beside our main subject to lay down here the main defects of personality from which the confirmed stammerer suffers. His heightened self-awareness, his timidity, his lack of social courage to develop his living relations as well as his innate inflexibility to make easy social adaptations, are all quite well known. In the majority of instances the forces which retard the development of the personality are quite unconscious or at least are imperfectly brought under the control of the will in any natural manner of social life. In some individuals the character builds the speech perversion into itself as a real part of it. Thus attempts to remove the speech defect may set up a series of defenses and resistances so that the sufferer never entirely loses his stammer or his defects of personality. In still others a slight stammer does duty as a sort of beauty spot in a character otherwise not colorful or charming.

The two points which I wish to make in this paper are (1) that in the more enduring types of stammering the essential fault lies deep in the character formation of which the stammering is but one of the symptoms, often the lesser; and (2) the manner of treating these types successfully includes painstaking, consistent analysis and synthesis of the personality as well as proper systems of speech gymnastics. This viewpoint is not new; almost all workers upon speech defects take the same position but fail to indicate more pre-

*Read at a meeting of the Section on Pediatrics of the New York Academy of Medicine, March 9, 1922.

†For the purposes of this paper I have used the term *stammering* solely. Some authors make no differentiation between this term and that of *stuttering*. According to the medical dictionaries consulted, *stuttering* is a spasmodic speech disorder in which certain words are enunciated with difficulty through inability, as it were, to pass the initial consonant; it is distinguished from the hesitating form of *stammering* which is not due to spasm, but to faulty innervation or to psychic causes. In my cases reported the patient has at different times both stammered and stuttered. My main concern, however, being to remove the psychic causes for the stammering—*i.e.*, hesitation in speech, repetition and mispronunciation by reason of embarrassment, agitation, unfamiliarity with the subject, etc., I have limited my designation of these speech defects to what has seemed to me the more euphonious term, that of *stammering*.

cisely the system of mental therapeutics for the personality as a whole by which we may overcome these essential or malignant types of stammering.* All agree that the *individual* must be treated, and not the stammering. Again, the awakening attitude that speech trainers have assumed shows a renewed sense of the value of handling this disorder along psychobiologic lines. To do this a psychiatric training is essential for the teacher's equipment. No mere training in academic psychology will be found to prepare one for this particular type of work. The confirmed stammerers have long remained in the hands of physicians who look upon them as suffering from a single faculty disorder and have therefore sent them to teachers for speech training only. The disappointment such individuals have experienced in consequence has caused them most frequently to look upon their stammering as incurable, and they have adjusted their lives accordingly. On the other hand it is a mistake to consider these confirmed stammerers as individuals suffering from a peculiar neurosis which may be cured by psychoanalysis as a hysteric or anxiety neurotic may be. It is really as profound a disorder as a compulsive neurosis, or even a convulsive tic to the makeup of which it is not essentially dissimilar. When an analysis of the morbid trend in the developing character has been made as thoroughly as possible, a whole system of synthetic reëducation is necessary. This method will be more thoroughly detailed after the case histories are presented.

To sum up, it would seem that confirmed stammering should be ranked as a syndrome of the effective life of self-expression. When we fully realize that the consideration of this speech disorder purely as such is but mere surface plowing, and that a mechanistic treatment of the fault solely is bound to prove a failure unless a good understanding therapy of the underlying defect present in each case is made, only then have we made a real advance in handling these speech disorders. As careful practising physicians we should not turn these cases over for diagnosis and treatment to laymen. One cannot believe this attitude will long prevail when modern systems of mental analysis and therapy are better known and understood. I do not refer to the relatively benign errors of speech seen in many young people wherein simple lines of training easily correct the speech fault, but in those confirmed stammerers who go on year after year, and in whom the defect cripples and distorts the whole life of its unhappy victim. Nothing less than a thorough neuropsychiatric training treatment will permanently relieve it. When we shall reach this position, the failures and relapses in stammerers will be much less a mockery to our science.

I shall cite briefly three cases of confirmed stammering and give *in extenso* that part of the history which has a bearing upon the contention of our thesis. The types of stammering presented are based upon as definite a constitutional defect as the severest forms of neuroses, or tics. Fortunately, primary instinctive defects are usually easier of socialization than many another form of defect.

*See E. W. Scripture, Stuttering and Lisping, Macmillan, 1912. M. G. and S. Blanton, Speech Training for Children; the Hygiene of Speech, Century Co., 1919. S. Blanton, The Medical Significance of the Disorders of Speech, *Journal A. M. A.*, July 30, 1921.

CASE I.—A young aviator, twenty-nine years of age, who was killed in the World War, came under my observation when twenty-one years of age during an indifferent undergraduate college record. His social activities, although unpleasant and at times painful, were not to his personal discredit. In a year's treatment he recovered sufficiently to mend his undergraduate standing and enter on a successful career as a special student in another university, which in turn was cut short by his entering the Aviation Corps. His childhood history was as follows:

He was born of sound stock. His father was of a stern nature, who maintained a certain aloofness from his large family of children. They never "got acquainted" with him. He invariably treated them with an austere kindness and rarely disciplined them by physical punishment. He remained a distant arbiter of authority. The mother showed but little outward warmth of sympathy, although the sons believed she felt it, but failed to express it except in times of serious illness or family disaster. No disorder of speech existed in any of the ascendants. Our patient was the oldest in a family of five—four boys and a girl. His childhood was uneventful as to physical disease. He was a shy, timid child, in awe of his father, and half afraid of his mother. He learned slowly in nursery training largely because in this large well-to-do and extremely religious family the children were left to nursemaids and governesses, who often frightened and punished them. He was taught his letters in spelling and reading, and not by phonetic methods. He was very slow in learning the fundamentals of education except in mathematics. By dint of hard work his school standing was fair. His hold upon concrete facts was poor, hence his memory was not retentive. The teachers' uninviting manner of presenting subjects seemed to increase his poor attention. He even observed poorly. He was quick and impulsive in judgments and not very certain in purpose and foresight. He was a restless, active child, intent upon being active but rather clumsy and awkward in co-ordination. He had a lively imagination and read a great deal. He was inclined to be talkative, but had a keen self-depreciatory attitude; he had no genius for making friends and got on slowly in boy acquaintanceships although as a very young child he possessed a mild desire for companionships of all sorts. His shyness and timidity caused him to be alone a good deal. His feelings were sensitive and rather easily hurt. He could not be induced to meet adult strangers, especially men. He was fond of animals, was generous, tactful in boy associations, and could co-operate well once he became acquainted. He was not stubborn or difficult to discipline. His sensitiveness naturally inclined him to see a slight when none was intended, but he held no grudges and was not resentful. He was frank with both parents, but always felt as though he were going through an ordeal in being so. Even as a very young child he was indecisive, was blocked by scruples and doubts, and was inclined to be led. He was a highly fantastic dreamer as a young child before his stammering neurosis appeared at six years. Although naturally enthusiastic he easily became overserious and not too brave in "facing the facts of life." He was not easily frightened by the dark, but had many forebodings regarding his ability to carry out tasks alone. He gave up easily. His temper was slow, but once aroused he was quite implacable.

In brief, we have here a boy obviously of the hypersensitive type, who got on fairly well with self-expression until six years of age, when without obvious cause he began to stammer. The stammering steadily increased year by year until he was almost speechless at nineteen. He could not recite in his classes and limited his activities to such a degree that life itself became a burden. Much of his stammering anamnesis is epitomized as follows:

As a child from his fifth to tenth year he was under the instruction of a French governess at home, and afterward had a tutor. During this time he exhibited a moderate degree of stammering. He had a certain agitated, shy attitude toward other boys and toward adult strangers. At ten he entered a boys' school and

there met with a great many difficulties, particularly in regard to reciting in the classroom and his association with other boys. He entered the school two years in arrears of boys of his age, and it was several months before he got acquainted with either the manner of study and recitation or the boy group in play and drill. He succeeded in accommodating himself to the new situation at the end of the first year and by tutoring. In the fall he succeeded in making up one of the years he was behind. The second year he caught up with his grade and was in very fair social relations with all the boys in his class group of about twenty.

He then went West for a year, and this was largely a year lost from the school work aside from a short time spent with a tutor. He then returned East and entered a preparatory school for a four years' course. There his difficulties of getting acquainted with boys and with the manner of school work were reemphasized, but were not so great as on his entrance to the first boy school at the age of ten. He disliked all the social features of meeting girls, dancing, etc., and avoided them as much as possible, as he had nothing to say and felt very awkward. He made fairly good contact with the other boys and made some very good friends, but always with a small group. The same difficulty of adaptation was again apparent when he finally entered college at seventeen. Coupled with this situation he began to have very decided doubts in regard to the religious faith of his parents and began to shed all religious authority. He was not frank in this respect, for he did not tell his parents of the disestablishment of his religious faith. He continued to attend religious service, but ceased to believe in any phase of religious practice and became decidedly agnostic. His dreams were largely of the unfulfilled type. He always had grave doubts about his being able to pass in his examinations, felt confusion and an increased nervous tension in classwork. His first release from nervousness was with natural associations with boy students, and then the recitations became easier. Coupled with the state of negation in regard to religion was an uncertain attitude as to his future in the world. His physical health was excellent.

For several months he was given uninterrupted psychoanalysis, which, because of the nature and extent of his speech defect, was immeasurably slow. The analysis disclosed the enormous overconditioning of the father authority. Fully a half of his normal speech was released in the analysis. Thereafter he was placed for several months in a sympathetic general physical and mental training. Speech gymnastics also were employed. At the end of a year he was completely cured and so remained. Speech training by mechanical principles alone by three competent masters had previously been a failure.

CASE II.—This patient, a young man of twenty, had been a stammerer since his sixth year. The alleged cause of the speech defect was stated to be a great fright resulting from a fall. The degree of exaggeration of his innate self-consciousness is shown when he is asked a question; he cannot answer; and if he himself wants to tell you something he cannot speak at all, for he is muscle—as well as mind—bound. Mental confusion is experienced. But when he is not consciously concerned in the outcome of the conversation, no difficulty whatever is encountered in speaking. When absent minded he also speaks normally. When keenly engaged in sports, in which he excels, he speaks fluently.

This patient is the second and older child in a family of two living members. He had an excellent school record in spite of his speech defect. His standing in all his sports was excellent. He was a very intelligent, resourceful child and did well in any line of work he undertook. The family atmosphere here, again, was a peculiar one. The father maintained a military aloofness in discipline. He had "few words, and those were to the point." The mother, although an intensive "worrier," had little to say. The whole environment was one of a quiet and suppressed warmth. The son stood greatly in awe of his father, with whom he was never on terms of good comradery. He was brought up under military discipline which followed an educational training in a military school and a college of the same type. The boy naturally grew up constrained and unnatural. Before he experienced his fright following an accidental fall which, though the latter was of great moment, preceded his speech disorder by a year and a half, his attitude was of an intense self-centered and opinionated one.

The actual training record of this patient at the outset showed not only a lack of ability, but also unwillingness to join with the group life at the training school. He avoided placing himself in any socially prominent position in the group. He showed no real desire to be useful in any way that promoted sociability. His timidity and shyness were so extreme that he even blushed when spoken to. As at first he was quite speechless, the immediate training was to give him oral gymnastics; he could not open his mouth fully or protrude his tongue without muscular spasm and pain. This and vowel elongation in speech finally allowed fair speech, whereupon the psychophysical training was begun. Even here progress was slow, as the pupil could not be made to understand the importance of even superficial social interest. Inasmuch as he was greatly interested in all forms of athletics, bowling was undertaken to show the advantage and pleasure of team play, physical as well as social. He soon lost his rigid, unconcerned manner as he became engrossed in the games. He lost his self-consciousness and spoke without difficulty; he gradually shed his constrained, retiring personality and became for the time quite a different fellow. So long as the group spirit endured he possessed normal speech. This was then used as an object lesson to point the former teaching moral which had previously fallen upon such indifferent soil. Primarily we found that his family training of cool indifference to social reciprocity hindered our work. Time and again the game and group spirit, with the free natural manner and speech that accompanied it, was placed before him and yet he would relapse. Mental analysis of his conscious history brought out again and again his boyish indifference to any real social feeling and how his military training further fostered his shy, timid and at last stubborn indifference to playing a sincere social part. His stoical indifference and narcisism slowly underwent a transformation, although he often boasted of the great personal advantage an indifferent and callous social spirit brought its possessor. A real conflict ensued and retarded this boy in making good progress. His training was interrupted after a few months, but we have learned since that he has made consistent progress and rather boasts of living more vitally into his social environment. He rarely remains by himself as formerly, rarely confines himself to writing out what he wishes to say, and uses the telephone. He has joined a social and athletic club. A final good augury is given in that he now rather despises his former boast of having a narrow view of the advantages of social life.

CASE III.—This patient was a young man of eighteen, who has had his stammering since eight years of age. The onset was gradual, rather than sudden, as in the preceding cases. The family stock from which he recruited his stammering was not free from a history of such defect. A paternal cousin and an uncle had a moderate degree of enduring disablement of the same disorder. The family situation fitted well the boy's diffident and timid nature. The father was keen on discipline and little infringements were so scrupulously noted and corrected that no large ones were encountered. The family being socially prominent and well to do much of the child training was placed in the hands of governnesses and tutors, who were "expected to get results" in the form of obedience, attention being given to the fact that "children should be seen and not heard," and the like parental authority saws. The child life and activity was almost the exact counterpart of Case I. The boy showed a shrinking timidity when three years old, and while not actually unhappy seemed never to have had a real good time. At first impression the meagerness of his emotional life with the great opportunities he has subsequently had for rich expression of it is almost astounding. But it becomes the more understandable when one recognizes that his very timidity and shyness has permitted him to merely participate as a spectator at the rich current of life which has eddied about him and his family. He was not even emulous, much less jealous or envious

of his fellows at school. His "boy times" were never talked over with anyone at home. As might be expected his educational work was rather indifferently poor, but this worried him little. The gradual growth of his stammering so handicapped and distorted his preparatory school work that he gained little good scholarship. He was therefore removed for speech re-education. Here it was found as in the other cases that the personality faults were fundamental and instinctive and had the same essential lack of harmony and free expression as that of the speech itself. After six months of training he is able to speak over the telephone naturally, and can meet strangers with free self-expression in both manner and speech. He can get on conversationally with a group of three or four fairly well. He is developing a feeling of confidence and initiative and has a small business of his own started entirely on his own effort. The feeling of inferiority is steadily diminishing.

In this boy we recognized at once that we had to do with a gentler, more cultured nature than in the preceding case. But here again we faced an unconcern which, though not stubborn or callous, yet showed no great evidence of a real whole-hearted interest. However, he was willing to comply with social demands when his training warranted that he make the trial. This he did even though he stammered fearfully in the attempt. Later he got to taking on the social tryouts because of a real interest in the game. After speech gymnastics had unfettered the cruder exhibitions of speech cramp and he began to make his daily activities of vital purpose he got on more rapidly. His articulatory defect was that of the so-called initial consonant defect type. Although speech cramp in set lessons was removed, he would still retain his shy, timid, constrained personality in social activity. We then began to make the speech lessons more like social settings, first bringing in one or two other companions in the lesson work and then finally making the patient himself the master teacher. Mental analysis produced little desirable results chiefly because the disorder had little other than an infantile timidity and feeling of inferiority toward elders (of the father type). However, the conscious analysis continued to disclose the meagerness of childish experience in little social excursions among his playmates. Finally he gained sufficient mastery of his social group to direct the game activity, run his own car and take his companions about the country with a variety of social experiences. At last he got to understand the real importance of self-control of his own social and economic interests. Under business experiences there lay concrete illustrations of the importance of a change in his former shy, timid, infantile personality. This, perhaps, was the most convincing experience of all. It showed that, as in the former pupils, as soon as he himself could be made to fully realize the importance of changing or shedding his infantile fixation of habit and manner the stammering disappeared and full power of self-expression in a normal manner began to take its place.

As a general comment on these three cases we may say that the statement of a need of a change of personality, or, better, a development of the existing personality, is of little effect until the concrete means and a demonstration of its more enjoyable benefits are adequately placed before the pupil. Only then do we see them improve. First find the basic interest, then employ or mold it into a trial social group and we are then on the way to a lasting betterment in these cases. The first was in the possible social usefulness of a medical career, the second in athletic and engineering interests, while the third was in that of a business training and a possible financial career.

Discussion.—I think it is shown in these few citations that there is a basic character fault preceding the stammering. In the main it is summated in a shyness and timidity toward all forms of self-expression. The supersensitive nature marks the infantility of these youths; it is perhaps the least objectionable form of egotism and only negatively social. The feeling of inferiority soon engendered in the stammerer is accentuated by the active or passive resistance which he exercises toward the great nucleus of authority, the father. Perhaps one may recover in every case a specific instance in which the one in authority in the home has repeatedly repressed the self-expression of these constitutional stammerers. This would not be of such signal moment if these children, because of their inheritance and makeup, did not so illy bear such repression. The removal of the maladaptive wrappings of habit and manner which the stammerer's personality possesses is the real purpose in analysis and treatment. Viewed in this light of origin there can be little wonder that the confirmed stammerer has produced such a distorted personality which he must first be taught to shed and then to make the proper social and self-expression consonant with his innate desires and station in life. He has to unlearn and relearn anew. The amount of sympathetic tact and inculcation of habits of broadly constructive effort which the trainer must exercise can hardly be overestimated. Nearly all confirmed stammerers are chiefly intent upon ridding themselves of their speech handicap solely. When they comprehend that only by consistently modifying the whole personality, especially that which underlies full free self-expression, they usually shrink from the task. Bald preaching is not only time consuming but most sterile of results. The habit training should perhaps begin or at least be consonant with the first efforts to overcome articulatory defects. As has been shown, this habit reëducation can be illustrated by concrete living examples of free and easy speech in newspaper and storied accounts and finally by creating situations requiring spontaneous natural effort at self-expression. At first we can create changing situations and then introduce a judicious admixture of varied personnel in the conversational group. But one—either the situation or the personnel—should at first be changed; later both may simultaneonsly be modified, thus increasing the agility of both adjustments. The manner and substance of the first lessons in training must of course be suited to the individual pupil. Oftentimes the discouragement of previous failures in training has calloused a flagging interest of ever getting back normal speech. This discouragement is only exceeded by the ease with which the pupil may go stale soon after a plan of treatment has been inaugurated. The work has then to be discontinued for a time, or better, change of scene and personnel may be required. In many pupils the degree of repression has been so marked that many of the mental attributes, such as attention and memory, have suffered dwarfing. The earlier mental training must then be reviewed to intensify the concepts of reality and enlarge the association memory of things, for largely upon these two factors a keen and resourceful mind depends—this and the comparative and competitive interchange of ideas with one's fellows lies at the very basis of developing intelligence in any large sense. The neglect of this review work often renders the mental life of the confirmed stammerer lacking. One should always be on the outlook for the pupil being easily persuaded that when he has gotten about so far in the riddance of his disorder and its person-

ality congeners he may quit or that he may seize upon any convenient excuse to stop training for a complete cure. This is said in no meticulous or carping sense, but the half-cured stammerer is a potential confirmed stammerer whenever some great social stress is reinvoked. Even those heretofore using articulatory methods of training solely, realize how common is this experience. Perhaps relapses of incompletely cured cases by the comprehensive neuropsychiatric method detailed here are much less common than those following more mechanical methods of training, but they are sufficiently numerous to warrant to the full this injunction. Usually the very affectless attitude the confirmed stammerer shows in the analysis proves that there is essentially a weakness in the will as well as in the emotional trends of the libido. This alone proves that the confirmed stammerer is not a neurotic in the ordinary sense of the word but that the early defect in speech expression is a part of an inherent weakness and that all analysis must finally end in psychic *reëducation* covering months or even years. The warm, friendly attitude toward the trainer which is necessary on the part of the patient is usually little in evidence, and to make it more operative for reëducation it must be continually heightened by a rather intense sympathetic interest in the stammerer's earlier conflicts. An intensive transference is absolutely essential for the synthetic reconstruction. Thus many a stammering youth has been "brought out" of his stammering diffidence of speech and manner by some resourceful, sympathetic woman, only to relapse when her influence is removed. If a proper analysis of the personality faults has first been made in such, this wise and subtle feminine influence may be of the greatest value in the reconstruction. The analysis should not greatly precede the synthesis, the two should rather go hand in hand, the analysis after a time being used only to get at the deeper roots of some morbid trend of manner or speech. The speech disorder of the confirmed stammerer is quite different in makeup from the fanciful speech defect of the neurotic and especially the hysteric. The seeming neurotic element in the confirmed stammerer is confined solely to his substitutive reactions in seeking expression, and not to the fundamental defect of speech itself.

In conclusion, it would seem that we have proven that the inherent defect of the confirmed stammerer is due to an arrest of the whole instinct of self-expression; that this personality defect is often summated or most marked in a later development of a disorder of speech. This being the case, the removal of the latter as well as its cognate personality defects is best brought about by intensive and thoroughgoing special speech gymnastics but more particularly by analysis and reëducation of the personality defect as a whole.

Acknowledgment is hereby given Mr. T. E. Uniker and Miss A. G. Brill for their assistance in training several of my cases suffering from speech defect.

2 EAST SIXTY-FIFTH STREET.

Chilblains Readily Cured by the X-Ray.—Lenk states that in the majority of cases chilblains are cured by a single treatment with the roentgen ray.—*Wiener klinische Wochenschrift.*

NEURASTHENIA: ITS TREATMENT BY MASSAGE AND KINESITHERAPY.

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"I fear too much rubbing: good-night, my good owl."
—*Love's Labor Lost.*

LEONATO: Indeed, he looks younger than he did by the loss of a beard.

DON PEDRO: Nay, he rubs himself with civet.
—*Much Ado About Nothing.*

NEURASTHENIA, as I understand it, may be either general or local, affecting the nerves or nerve cells of all or any part of the cerebrospinal or sympathetic system. Its manifestations are those of exhaustion or too easy exhaustibility of nerve force; and its pathology, malnutrition of the nerve cells involved, with concomitant instability of their circulation in the form of anemia or hyperemia, or alternations of these. It predisposes to, it accompanies, it results from disease; the nervous shock and the tedious recovery from injuries point to other sources, and it may be caused by overwork, worry, or sheer laziness. The agreeable fatigue after a satisfactory day's work that insures sound sleep may be regarded as a healthy form of neurasthenia, if the Hibernianism may be pardoned.

It is a matter of common observation that those who are compelled to hard manual labor seldom suffer from nervous prostration; and among the more fortunate who may be predisposed to neurasthenia those who are deeply interested in some hobby or occupation that keeps mind and body active have found the best means of prophylaxis. The same means that serves for its prevention also supplies us with a clew to one of the most valuable agents that can be employed for its relief or recovery. Exercise keeps the circulation active, but requires effort of brain, spinal cord, and nerves, as well as muscles, at a time when our object may be to afford rest to one or all of these parts of an overtaxed nervous system. Massage supplies this want, and will keep the circulation going with a minimum or no expenditure of nerve force from the patient; and deep massage without friction will lessen the beats of the heart and afford it rest also. Yea, more, for it is getting to be the fashion not only among the laity, but also with some physicians, to say that massage imparts energy to the patient, though I confess I do not exactly understand what this means. Certainly, many who submit to massage feel much more vigorous, light, and supple after even the first application than they did before it. But may not this be rather owing to the rousing of their latent energies, and restoring the equilibrium of their forces, by facilitating the circulation of blood, the flow of lymph, and the transmission of nerve force?

I have previously stated elsewhere that in cerebral exhaustion the relative value of massage was almost *nil, and* that out-of-door exercise was of paramount importance; but I have since found reason to modify this in favor of more massage and less exercise. In such cases massage of the head alone daily or every other day is better than applying it all over the patient, unless there be a rare idiosyncrasy that will not allow the head to be manipulated.

There are people, not a few, who, when using their brains, suffer from uneasy sensations in their lumbar or dorsal region, and these discomforts continue after the cessation of study, causing wakefulness. Generally there is also some spinal irritation in the region affected. In such cases massage of the back alone will often induce sound sleep, and next day the patient feels inspired with faith, hope, and courage, in place of doubt, and fear of meeting appointments. With these cases a much more marked effect is produced by local than by general massage, except when the tenderness of the muscles and spinal irritation are extreme, unfitting them for every kind of work, and then the massage should be general, omitting the back at the first séances, but gradually approaching it at subsequent ones.

In other cases of what may be called local neurasthenia, if the term can be allowed for this purpose, such as writer's cramp, or the cold, small, and feeble muscles resulting from injury, disease, or disuse, massage and exercise, carefuly adapted, have given excellent results. To these have recently been added another affection, namely, laryngeal cramp of musicians and speakers, for the local treatment of which electricity and massage are considered the most effectual measures.

It will doubtless be a revelation to many to experience either in their own heads or to observe in those of their patients the light, comfortable, delightful feelings that are produced by the resistance of a skilled manipulator to forward, backward, and lateral movements of the head. The impression is that the interior of the head has been benefited, and the effect is hardly secondary to massage, which rather gives the impression that the exterior has been improved.*

It is not so very many years ago that the existence of such a disorder as neurasthenia was doubted and even denied by distinguished neurologists, some of whom have since found out by personal experience that it is a dread reality, no longer to be made fun of. And now nearly all of them are ransacking the misbehavior of every organ of the body, from the eyes to the anus, for some cause, proximate or remote, of this disturbance of the nervous system. I have seen quite a few of these unfortunates, and it has been gradually impressed upon me that those of traumatic origin do much better under treatment than those that are not—the so-called idiopathic, essential, or constitutional cases; and it has also been strongly impressed upon me that when it comes in those past middle life its duration is very much shorter than when it occurs in young adults. On reflection this is what we might expect, for the nerve cells of the young are much more impressible than those of the old. I have seen several cases of severe shock from injury to the aged completely recovered from in an astonishingly short space of time. I have seen the whole gamut of neurasthenia gone through with in elderly people and recovery take place in a few weeks under massage. Some people are decidedly neurasthenic in cold northern climates, who are not at all so in warm, southern latitudes. Six weeks of general massage every other day will rouse the circulation and depressed energy of such so that they can resist the cold rigorous climate of the North and go through the winter with comfort.

A stranger traveling in southern Illinois will often be surprised and delighted, on asking a native who is recovering from malaria how he feels, to hear the answer, "Oh, powerful weak! powerful weak!" That is how neurasthenics feel.

Neurasthenia, the background to the picture of nearly all diseases and injuries, whether of an organic or functional nature, for our present purpose may be regarded from other points of view. First, there is the natural and not unpleasant fatigue, the result of an active and satisfactory day's work, from which we recover by food and sleep.

Then comes the fatigue from which we do not recuperate as usual, the fatigue of being overworked, worried, or, in common parlance, "played out." Here rest or change of scene is of the first importance, and may be all that is necessary; but if this be impracticable or without effect, tonics and sedatives may suffice. Before rest, change, or medication had been resorted to, it has been my lot to have tried massage in several cases of this class, where it has "lifted them up out of the rut" and been the means of procuring good sleep with vigor of mind and body, so that they were able to proceed with their duties uninterruptedly and as easily as ever.

Thirdly, there are the continually wearied, wakeful, and nervous business or professional men with numerous and varying ailments, who have learned by experience that "the labor they delight in physics pain," and who find more relief in work than in rest. Massage will sometimes put such on a higher plane of existence and give them a zest for work which they have not derived from any other source. But, unfortunately, the interest they gain on their stock of vitality in this way is apt to be used up as fast as it accumulates.

Fourthly, there are the neurasthenics who are simply spoiled children, who have plenty to live on without work, and usually more, who have little or no object in life, and who can do what they please and cannot do what they don't please, who take delight in telling of all the eminent medical authorities whose care they have been under without any benefit resulting, and who are never happier than when they can be regarded as interesting by trying some method of treatment that is novel to them in order that they may have the final satisfaction of saying that it did them no good. I well remember one such who defiantly said she would like to see any physician who could benefit her. Serious disease came upon her. She could not or would not understand the nature of it, and allow herself to be treated as other people, and she prematurely lost her life. There is no help for such but to lose their fortune and be obliged to work. However, they form a large part of a clientèle of massage.

Fifthly, there are those who, in spite of rest, change, and medication, have become chronic neurasthenics, the result of business reverses, overwork, worry, loss of relatives, disappointed hopes, or as a sequel of some affection that has existed in some part of the system, but which has disappeared

*A distinguished lawyer of my acquaintance always had his head masséed before he went into court, and he always won his case.

or become of secondary importance. If in these the symptoms point most prominently to spinal exhaustion—myelasthenia—where exercise easily tires and aggravates, massage will be of marked benefit as a tonic and sedative and corrective of morbid sensations; of less advantage, but not useless, in cases where the symptoms point about equally to easy exhaustion of spinal cord and brain. I used to think that, in cases of cerebral exhaustion —cerebrasthenia, as some call it—where as a rule physical exercise can be freely taken, this would be of greater benefit than massage, and that the value of the latter here was almost nil, and might be dispensed with, unless it were for a luxurious *placebo* to fill up time and keep the patient from trying something worse; but time and experience have changed my opinion.

The links in the chain of symptoms that point out neurasthenia or nervous exhaustion, so that they could be clearly understood as indicating deficiency of quantity or impairment in quality of nerve-force, were best connected by the late Dr. George M. Beard of New York City. His statements will hardly be appreciated until they are independently thought out from observation and one's own conclusions compared with his. Take, for example, the following paragraph, the import of which I have known to be overlooked by three of the most eminent neurologists on this continent, to whom Dr. Beard was a next-door neighbor: "In cerebral exhaustion, active muscular exercise in reasonable amount and variety may be allowed and enjoined; in spinal exhaustion, relative and in some cases absolute rest is demanded, or only passive exercise for a shorter or longer time, as may be, according to the special peculiarities of the individual."

It does not help matters much to coin a Greek or Latin name for every symptom connected with neurasthenia; and with all the care in naming and accounting for symptoms that Dr. Beard has shown, there are, I think, two which have not yet been mentioned, and which are, like the others, only exaggerations or perversions of natural occurrences. First, there is what almost everyone has experienced, namely, an inadequate conception of passing time. Even with the same person at different times and under the same or different circumstances time may drag along slowly and heavily; at others it will seem to pass so quickly that it is impossible to accomplish anything, even if working in the greatest hurry. Haste is generally a sign of weakness. Secondly, the cause of wakefulness in some cases of neurasthenia is doubtless due to a languid condition or want of nerve-force in the respiratory center, so that lessened respiratory movements have to be supplemented by voluntary ones which require the patient to wake, the *besoin de respirer* becoming so urgent that respiration cannot longer go on involuntarily.* Even in health excessive fatigue may prevent sleep. The cardio-inhibitory and the vasomotor center in the neighborhood of the respiratory center may be affected by sympathy with the latter, or they may suffer from impaired nutrition, deficient nervous energy, or irregular blood-supply, as may other nerve centers. But to return, for the relief of incorrect appreciation of time and frequent repetitions of waking up at night, as well as for the majority of other symptoms of neurasthenia, massage has proved an efficient agent in my hands. The feeling of loneliness and depression that is so apt to come in the night-time when people are run down or in ill-health is usually dispelled very promptly by means of massage. In this and other respects its action is similar to the primary and agreeable effects of opium and alcohol in restoring tone to the respiratory center and vascular system without, however, the injurious after-effects of these internal remedies. In place of headache, drowsiness, and disordered digestion, which are so apt to result from the use of hypnotics and stimulants, after sleep from massage the patient is refreshed and buoyant in mind and body. Massage does more than this: it will often counteract the disagreeable feelings that result from the necessity of taking sleep-producing medicines or too free indulgence in alcoholic stimuli. In several instances I have noticed that patients were more susceptible to the agreeable influence of massage while they were taking morphia—the opposite of what might be expected. I know of at least one physician who considers Mr. Bombast, who pretends to have rubbed all the royal highnesses in Europe, a good man to finish off a fellow who has been on the spree by a rubbing.

There are some people who are born neurasthenic, go through life neurasthenic, and die neurasthenic. Some of these never know that they are lacking in nerve-force, while a few of them do find out, from an occasional day of good feelings or lucid intervals, if one may say so, that their customary vigor is far below what it ought to be. If this class could have massage for a long period or all their lives, they would get a great deal more out of what makes life worth living. There are those who seldom feel any lack of energy so long as they are occupied, but who have a hard struggle to rest and go to sleep; and these are benefited by massage. Massage is often the only remedy for numerous and indescribable unpleasant feelings, and the subjects of these who have experienced the relief it affords crave its application as they do food and drink when hungry and thirsty. But most physicians know how fickle neurasthenic patients are; for, even while improving, they will often suddenly give up treatment, for no apparent reason except it be that they are afraid of getting well.

In these and other cases where massage seems to be indicated, it may be given daily or every other day, locally or generally. If there be no apparent effect from this treatment at or soon after its application, it is well to repeat it daily until the latent energies of the patient seem to be rousing, as shown by increase of comfort, vigor, and sleep. Then the intervals between the massages may be lengthened, but not to the extent that the effects of the preceding manipulation may have entirely passed away before another is administered. In some patients

*This sentence was published by me in 1884. In 1897 Dr. S. Weir Mitchell wrote: "When for some reason the respiratory centers are diseased or disordered, a man may possess enough ganglionic energy to carry on breathing well while the waking will can still supplement the automatic activity of the lower centers. But in sleep, these being not quite competent and volition off guard, there ensues a gradual failure of respiration and the man awakes with a sense of impending suffocation."—Clinical Lesson on Nervous Diseases.

reaction is slow, and they feel better the day following that on which they have the massage than they do the remainder of the day on which it is given. In such cases every other day is sufficiently often to manipulate. Massage of the back alone will often relieve fulness of the head and headache, and this repeated may be all that is necessary. Massage of the back and head will more frequently be used, but general massage is the best for the majority. I have more than once defeated the object in view by overdoing massage on starting, when, as the sequel showed, fifteen minutes would have been all that the patient could take with advantage. I have sometimes overdone the matter at the patient's own request for a longer application, though I had warned him beforehand; and, following the advice of an eminent physician, I have sometimes used massage too freely. The argument too often used, that massage can do no harm if it does no good, is a dangerous one. When a man understands one branch of the medical profession well, one of the commonest errors is to suppose that he understands all the rest equally well, as if our knowledge of massage, like everything else, did not come through experience.

The time of day at which massage should be given is in some cases of importance. If a patient be not very weak, as a general rule, I prefer the time of day at which he feels the worst, or just before this, so as, if possible, to tide him over this period, which can sometimes be done. When a patient does not sleep well, the later in the day massage can be done the better. When a patient of a nervous temperament sleeps well, massage should not be administered in the evening, as it is very sure to make him wakeful, and this applies to such as are well in their nervous system, but may require only local massage for a joint or muscular affection. These are so refreshed after the massage that they do not feel the need of sleep. The antitoxins of fatigue work better when the patient is awake and resting than when asleep. Patients may be benefited by massage when they are too weak to travel. It requires a certain quantity of nerve-force to sustain life at its lowest ebb; more than this, to receive massage with benefit; still more, to be able to travel; and more than all, to exercise freely.

Endocrinology and other ologies are still being invoked to explain the causation of neurasthenia, forgetting the excellent theories of their predecessors. Thus George M. Beard many years ago thought that it probably consisted of malnutrition of nerve-centers followed by disturbances in their circulation from weakened innervation. These secondary disturbances consist of local anemias and of local hyperemias. In other words, in that equilibrium of wear and repair which means health, a disturbance occurs which means disease. There will be sudden ebbs and flows of impoverished blood in the various vital organs—the same kind of surface flushings and blanchings going on in the deeper structures. Thus we may see in the same person, and starting from one cause, alternations of anemia and hyperemia of brain, stomach, or spine. The cerebral exhaustion or irritation manifests itself by clavus, wakefulness, heaviness, asthenopia, and by inability to read or write, or to concentrate the thoughts on any given subject; the exhaustion of the stomach by flatus, nausea, gastralgia, capricious appetite, and so on; the spinal exhaustion by tender spots, backache, and weariness. The anemia of the reproductive organs is exhibited by amenorrhea or by scant menstruation, by neuralgic and hysterical pains; the hyperemia by congestion, dysmenorrhea, menorrhagia, and leucorrhea, by uterine flexions and dislocations, and by a variety of subjective and objective phenomena with which every physician is familiar.

Physiologists and neurologists are still searching for hidden treasures in the superficial and deep reflexes of the human body, overlooking the sound principles inculcated by Maudsley many years ago in his "Physiology and Pathology of the Mind" (page 178). "As in the action of nature upon man the stimulus which is not reflected in the spinal cord passes upward and excites sensation, and the stimulus which is not reflected in sensorimotor action passes upward and becomes idea, and the stimulus which is not reflected in ideomotor action passes from cell to cell in the hemispheres and excites reflection; so in the action of man upon nature the force of the will passes downward through the subordinate centers in an opposite direction; the will involves a conception of the result, or a definite ideational action; the conception of the result demands for its further transformation the appropriate motor intuition; and the motor intuition, in whatever center, spinal or cerebral, it is organized, demands for its due expression in movement the perfect function of muscular feeling and the integrity of the motor nerves and muscles."

Intercepted is doubtless the meaning of the word reflected, as it is in the first place here used. Massage then excites sensation, therefore it is not reflected in the spinal cord, but rather dispersed. Neither is it reflected in sensorimotor action, save when painfully applied, hence it gives rise to idea. Nor yet, when passively administered is it reflected in ideomotor action, therefore it ought to excite reflection or thought, to the reality of which result French authors and all who have properly undergone such treatment can testify. On the other hand, what may be called the objective evidence, whereby the will accomplishes its desires, depends largely on the perfect function of muscular feeling. Experience proves that massage excels in restoring the lost or perverted function of the muscular sense by aiding nutrition in the elimination of débris and by equalizing the circulation, as well as by the more normal impulse it seems to communicate to the cellular forces whereby endosmose and exosmose work more in equilibrium.

If space permitted one might give numerous cases illustrative of the following conclusions which ought to be well known by experience and observation to every physician:

1. That massage induces sleep.

2. That even when massage is applied in the forenoon its soporific effects may not disappear before bedtime; though in general the later in the day massage is used for promoting sleep the better.

3. Disagreeable feelings of drowsiness and languor do not necessarily intervene between massage in the forenoon and sound sleep at bed-

time. Aptitude for rest or work generally follows massage. The mind is clearer, the mental faculties work easier and longer, the muscles are suppler and do not tire so soon.

4. When people are wakeful after massage they may not be restless nor feel the loss of sleep on the following day. Athletes find that repose without sleep best relieves fatigue after prolonged strain. The reason is that the internal secretion antidote to fatigue-products is more rapidly formed during waking hours and more freely supplied to the muscles when the blood is not accumulated in the splanchnic area.

5. Spinal irritation is relieved or disappears under massage.

6. For local neurasthenia there is no need of general massage, unless the whole system be secondarily affected.

7. When affections have come to a standstill under massage, improvement may yet go on after massage has been discontinued and without any suggestion to that effect.

8. For improving the nutrition of nerves and muscles, restoring natural sensation and motion, massage may succeed when other means have failed.

9. Deep massage without friction has proved of more value in my hands than all other forms of massage put together.

10. Massage can be overdone, producing opposite effects from a moderate application.

11. Besides massage, carefully graduated exercises at regular times are valuable accessories in the restoration of motion.

12. Massage is not the only means of treatment for neurasthenia. Its selection is usually decided upon after the failure or exhaustion of every other means, in the same manner that the shrewd old divine decided that it was not wise to let the devil have all the good tunes to himself.

13. From a consideration of this it will be seen that, in general, massage produces a normal cenesthesia, *i.e.* a combination of all the good feelings, mental and physical, sometimes called the sixth sense, which is different from that produced by either rum or religion, and has no bad after-effects.

520 Boylston Street.

PHYSICAL TREATMENT OF FORMS OF ARTHRITIS.*

By WM. BENHAM SNOW, M.D.,

NEW YORK.

THE classification of the types of joint inflammation is made with reference to their cause or origin as (1) traumatic, (2) gouty, (3) toxic, and (4) infected. Those arising from infection may be subdivided into (*a*) locally infected and (*b*) toxic in origin.

The treatment of each case must depend upon the cause and the conditions presenting. Diagnosis, therefore, at the outset, as to the cause, is imperative if success is to be obtained.

It is the disposition of many in the medical profession to refer to painful conditions as "rheumatic," and to treat them too often from this point of view. The exploded notion of uric acid poisoning is also still inherent in the minds of some of those who have not kept pace with the distinctions which modern research has revealed.

It is common also to hear a patient, and occasionally a physician say, "I hurt the joint and then it became rheumatic," instead of recognizing the fact that an inflamed joint, particularly if kept at rest, has little if any tendency to recover, but a likelihood of becoming chronic. This is particularly true of the inflamed conditions of traumatic origin, as arising from sprains or contusions. The disposition on the part of some orthopedists to keep an inflamed joint at rest, in plaster or in other splints is one of the greatest mistakes that these respected members of our profession are prone to make. The patient himself is ever disposed to rest a joint as much as is necessary, or more.

As a matter of fact, experience has taught that an inflamed joint of traumatic origin, in which no rupture has taken place of bone, ligament, or muscle, should not be kept at absolute rest or placed in a splint. As Dr. Watson Savage once said to the author, "The boy on the football team, who sprains his ankle and goes on with the play soon recovers, as he must, or be counted out the eleven." The coveted place on the team induces him to stand the suffering during the activity in which he is engaged, and very soon the muscle tension and the swelling which were present diminish and the part gradually assumes a normal condition. There are relatively few physicians who have recognized this point of view.

It is readily demonstrated that the swelling present following trauma or arising from toxic or infectious causes is the source of the pain which is aggravated by movement or pressure. In 1902[1] I first called attention to the fact that local *stasis* with infiltration in the normal tissue could be readily removed by electrostatic methods, and that the time to treat a traumatic injury was as soon as possible after the accident had taken place; before there had been a tendency to organization of the exudation or before plastic adhesion had taken place in a joint or elsewhere. I have never had occasion to change my opinion and we have always been able to demonstrate the correctness of this point of view.

When it is generally recognized, as it has been by a large number of physicians, that the static current is capable of dissipating the infiltration present in swollen tissue whether associated with a congested joint, uterus, or prostate gland, it will not be necessary to enter into the description of methods so explicitly.

This contribution was an innovation to the older dictum, that "electricity should not be used in acute inflammatory conditions." In discussing the paper which was read in Buffalo before the American Electrotherapeutic Association, Dr. William J. Morton confirmed the opinion expressed by me, basing his views on cases observed in his own practice. At the present time it is generally known that the static and high frequency currents are indicated in acute inflammatory conditions.

*Read by invitation before the National Society for Physical Therapeutics, Washington, D. C., June 21, 1921; and before the New York Electrotherapeutic Society, April 5, 1922.

The older notion referred to the use of the constant or induced current, and the dictum resulted from some accidents which had occurred from the early employment of these methods. These older currents are not effective in removing the exudation from the swollen tissues, except when very superficially located in the skin or surface. The same is true of the applications of radiant light and heat—often incorrectly called baking; though by this method the heat is induced well into the tissues by the transformation of radiant energy into heat. With the use of *dry heat*, properly called baking, when employed at high temperatures, it is impossible to give relief from the induration except in the early stages of an inflammatory condition, when it may be possible so to dilate the lymphatics as to assist the flow. When a condition of stasis is once established, however, and the tissues are indurated with the capillary and lymphatic vessels dammed up by the swollen, hardened condition of the tissues, it requires some measure which will act as a *vis a tergo* to force out the accumulated exudate, that is blocked up in the lymph spaces. The static modalities—the wave current, sparks or brush discharge, applied over the tissues so engorged—produce sufficient alternating contraction and release of the infiltrated tissues to drive out most of the exudate through the lymph channels and coincidently to relieve the muscular spasm and so relieve the condition.

When this was first revealed to me, I was treating a case of sprained hand with the static brush-discharge, and observed the swelling disappearing under the aministration. The hand, which was too painful to be manipulated before the treatment, after the first application could be handled and moved without pain. Before this I had treated cases of arthritis of the ankle joint and other joints with success, but had not appreciated the *modus operandi* of the method, attributing the relief to removal of the hyperemia instead of the *stasis*. From the date of this observation in the year 1900, the effects of and indications for the employment of the static modalities have been unquestioned. Since then the results have been verified in all inflammatory conditions not the seat of local infection, in which they are naturally contraindicated.

This consideration of the principle of the action of the static current is made in order to explain its effects as a means of meeting the indications in the treatment of many cases of arthritis. The only cases in which the method is not beneficial are those of ankylosis, of malignancy, or when germs are locally present in the joint, as in the case of tuberculous arthritis, or in rare cases in which pyogenic infection is present.

The method employed in the cases of arthritis is as follows: With the patient seated upon the insulated platform, encase the joint with metal for electrodes and connect it to the positive pole of the static machine with the negative pole grounded, and apply the current with an increasing spark-gap as the measure of dosage. The length of the gap will depend upon the part that is to be treated. For example a short spark-gap used for a small joint should be just short of causing muscular cramp. The same rule obtains with all joints. With the knee joint a spark-gap of from 6 to 10 inches will be required, varying with the size or development of the part.

The muscular tension, always present in cases of arthritis, involving the long muscles crossing the joint, should be relaxed; because the relief of the tension will remove much of the discomfort and relieve the pressure upon the surfaces, which if persistent, in cases of chronic arthritis, as in rheumatoid arthritis, will interfere with circulation and lead to erosion of the opposing surfaces.

Following the applications of the static wave current, static sparks should be vigorously applied to the joint and to the tense muscles, to remove the deep infiltration from the joint. When properly applied along the contracted muscles the sparks will completely remove the muscular tension.

Another method, which is employed in the inflammatory conditions of small joints, and as a part of the treatment of ankle sprains, is the static *brush-discharge*. Not the so-called blue pencil discharge, but the static brush-discharge proper, applied with the patient connected to the negative side of the static machine with the positive grounded and the electrode moved about at a distance at which the discharge will produce a distinct sensation as of hot sand projected against the skin. This application is made for the purpose of removing the superficial infiltration, and to hasten the absorption of the ecchymotic area where the blood is extravasated beneath the skin. The application is made usually until the skin has become distinctly hyperemic, not carrying it so far that too great irritation of the skin is produced. This method of applying the static current is also used for removing induration around the margins of ulcers and wherever superficial induration is present, as with delayed union or with a traumatic injury with swollen margins, when a healthy condition can be restored which will heal without leaving scar tissue.

Muscular spasm as associated with all inflammatory conditions, as previously stated, is relieved by the static wave current or sparks applied over the contracted muscles.

In the management of uncomplicated *traumatic arthritis*, as previously stated, no treatment is required except the static applications unless ankylosis has occurred; when frequent applications of diathermy through the joint will prove effective as an aid in breaking up the adhesions, which may be accomplished when they are not too extensive or chronic.

In the management of *toxic arthritis*, due to the presence of foci of infection, as in the teeth, tonsils, vesicles, or elsewhere, treatment should be directed first to the source of the toxemia, which must be corrected as the initial part of the treatment. Cases of involved tonsils, in the light of modern science are treated by operation, the *x*-ray, as outlined by Dr. Byron S. Price or Dr. Witherbee, by desiccation, or by the application of the ultra-violet rays through the mouth to destroy the infection in the tonsils. They need rarely be removed, however, but left to perform the function of removing the germs in the secretions in the mouth.

These conditions should be treated, as are the traumatic cases, with the static current or dia-

thermy along the lines suggested, and as indicated in every case of toxic arthritis or neuritis.

As for the treatment of infected teeth there is but one indication—their removal. Furthermore, any tooth in which the nerve must be killed to save the tooth, should be extracted instead of being capped and filled, when it would sooner or later cause trouble. The *x*-ray will as a rule find these capped teeth the ones causing the trouble.

In *gout* other indications must be considered. Gout is undoubtedly due to a deranged condition of the liver caused by certain errors of diet or habit; very often attributable to alcoholic drinks, particularly champagne. There are patients who will have an attack after a champagne dinner, so certain that eventually they will anticipate the effect of such indulgence. The treatment of these cases is most satisfactory, and must include the vicinity of the liver, as well as the local condition. The application of the static wave current is made with an electrode applied over the liver and epigastrium. The electrode should be about 4 inches in width and from 10 to 12 inches in length applied along the margin of the ribs, and the spark-gap should be long enough to cause marked contraction of the muscles beneath the electrode, in order that it may so affect the liver as to accelerate its function. The treatment of the local condition should begin with the static brush-discharge, which should be applied until a marked degree of hyperemia is produced in the skin; then to be followed by the application of short static sparks. This will remove at the first application most of the infiltration, pain, and tenderness. After the treatment, in an acute case, the patient will put on his shoe and leave the office with very little, if any, discomfort. In cases that are not chronic two or three of these routine treatments will entirely relieve the conditions. In chronic cases, it will be necessary to treat the patient for his general metabolism, employing both radiant light and heat in addition to the local treatment, and treatment of the liver will be necessary. A longer time may be required to effect a cure or relief of the condition in chronic cases.

There are two types of conditions of toxic origin, arising from intestinal infection, one acute which, if any type of arthritis may be correctly called "*rheumatism*," it is this type. The other type is chronic—rheumatoid arthritis. In both the affection is bilateral, more or less acute in its onset, and generally involving many joints of the body.

The indication in the treatment of the former is to clear out the alimentary canal, and keep it clean. A strict non-protein diet, and castor oil followed by high colonic flushing daily with local static treatment as outlined will relieve, and generally cure the acute cases in a few days. In bed-ridden cases clearing out the alimentary canal, as previously stated, with applications over the abdomen of radiant light and heat and administrations of salicylates or other intestinal antiseptics until the patient can go to the physician's office for the static or diathermy treatment is a rational course to pursue.

Rheumatoid arthritis, like rheumatism, as previously stated, is a condition of intestinal origin, subacute in character, caused, as a rule, by constipation with intestinal absorption of decomposing protein products which support and favor pyogenic bacterial growth. It is insidious in its onset. The uniform bilateral involvement of the joints is characteristic of this affection. It usually begins with the small joints, as the joints of the hand, and extends to the larger joints, and ultimately may involve all the articulations of the body. Without going further into detail as to the etiology and pathology of these cases, the treatment must depend upon the relief of the local condition, together with the removal of the bacteria and accumulated feces—the source of toxemia. This affection was one of the first types of cases coming under the writer's observation when he began his service in Dr. Wm. J. Morton's clinic, at the New York Post Graduate School and Hospital in 1898, and awakened an appreciation of the value of the static modalities. It was the results obtained in the treatment of rheumatoid arthritis that demonstrated their important therapeutic value. At first the only treatment given for these patients was the static treatment of the local condition and of the liver, which included applications of the wave current over the liver and the administration of the static wave current and static sparks to the joints.

In a paper read before the annual meeting of the American Electrotherapeutic Association at Washington, D. C., in 1899,[2] I reported a number of cases which had been relieved or clinically cured by the static treatment.

For several years in the treatment of these cases the static modalities alone were employed, without reference to the alimentary canal and with relative success. Later we became convinced of its infectious origin in the intestinal tract, and the patients were put on a meat-free diet, and daily colonic flushings were prescribed until the feces were normal in character. It is a part of the regular routine now to employ the static modalities, and control the intestinal infection, which is greatly facilitated by instituting a diet free from animal protein, and the use of high colonic flushing.

The application of the static wave current and static sparks to the joints in these cases relieves the local infiltration; and the dietetic regimen and the intestinal washings remove the cause. Such uniform success has been derived from these methods in rheumatoid arthritis, that the routine method is followed with enthusiasm. If the treatment above described is followed in cases where there has been no destruction of joint surfaces the case can be clinically cured, and in cases where there are structural changes such as erosions of the articular surfaces of the finger joints, these can also be relieved from an extension of the process.

Still's disease, a form of general arthritis, was described by Spender as rheumatoid arthritis in children, but was later shown by Still to be associated with an enlarged spleen. We have had two of these cases under observation—one an advanced case in a child of eight years in which the chance of marked improvement was impossible, on account of the structural changes and contractures already present in many joints. With the application of the static wave current to the joints, it was possible, however, to remove all of the tenderness and pain, which had been of years standing and make the little fellow fairly comfortable.

The other case came under observation before there had been any structural changes. It was a child two and one-half years of age and was referred by a surgeon of the New York Hospital for Ruptured and Crippled. The joints in this case had had one year of surgical management, a part of the time at the hospital in plaster, and with massage, but had not improved. With the use of the static wave current applied with metal electrodes over the joints daily for a period of six weeks we were able to accomplish an effectual cure. This case and the other case were reported and published in 1904.[2]

This case was again exhibited before the Orthopedic Section of the Academy of Medicine five years later, showing absolutely no recurrence of the trouble, and the young woman is now twenty years of age, well and without recurrence. We are justified in calling this case a cure. No part of the result in this case can be attributed to anything but the static wave current, for no dietetic or hygienic methods were or could have been employed in this case.

In the treatment of sprains and trauma or the forms of arthritis, or following dislocations in our own experience, and from reported cases by orthopedists, it is justifiable to state that no such results are to be obtained by other methods as with the static modalities as included in the consideration of the management of the various types described.

While diathermy is useful in some cases, as a rule its employment is redundant, except in cases of infected joints, of tuberculous and pyogenic infections, and in ankylosis. In these cases, the joint employment of diathermy with the *x*-ray will be found to be useful in the earlier stage.

In cases of fibrous ankylosis, physicians whose experience has been large in army practice and others, have been successful with diathermy. In bony ankylosis there can be no hope of relief from electrical treatments.

There is no class of conditions, however, in which greater satisfaction has been obtained with the static modalities than in the forms of arthritis as enumerated, when the methods are correctly employed.

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A HERETOFORE UNKNOWN MENACE INHERENT TO THERAPEUTIC SERUMS.

By FERDINAND HERB, M.D.,

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THE following consideration rests upon the now firmly established fact that blood ferments, or antibodies, cannot perform their work without the presence of another substance, commonly known in America as "complement."

The exact composition of complement has not as yet been ascertained. However, it is known to be present in fresh serums. If serums which contain complement are heated to approximately 60 degrees C. for several hours, the complement disappears. Ferments that may at the same time be present in the serum are not affected by this temperature and are just as active after heating as before, if new complement is added. It is the universally accepted view that the disappearance of complement upon heating is due to its destruction. Bordet, Metchnikoff, Ehrlich, Wright and their many collaborators and followers have held, and still hold to-day, this view without a dissenting voice. In fact, this viewpoint has never been challenged. Complement is, therefore, called "thermolabile."

There are, however, experimental and clinical phenomena that can hardly be reconciled with the thermolability of complement. Nor has anybody ever furnished the proof that the disappearance of complement is due to its destruction. This subject, therefore, deserves reviewing. Aside from its enormous clinical importance, the correct interpretation of the disappearance of complement upon heating concerns us here particularly, as it has a direct bearing upon the disclosure of the heretofore unknown menace inherent to therapeutic serums.

Though this is intended to be clinical paper, it will be necessary to adduce one of those experimental findings that cannot be reconciled with the thermolability of complement. I refer here to what is called the "Neisser-Wechsberg phenomenon." Only those data, however, will be given that are absolutely necessary for the proper understanding of the experiment.

If 1/5000 mil of a fresh broth culture is mixed with 0.3 mil of fresh, normal serum and heated immune serum is added in increasing quantities, most perplexing results are obtained. The details are shown in the accompanying table.

Broth Culture	Heated Immune Serum	Fresh Normal Serum	Colonies Developed
1 / 5000 mil in all cases	1 mil	0.3 mil in all cases	infinite
	0.5 "		infinite
	0.25 "		many thousands
	0.1 "		several thousands
	0.05 "		about 100
	0.025 "		about 50
	0.01 "		none
	0.005 "		none
	0.0025 "		about 100
	0.001 "		infinite
	0.0005 "		infinite

The 0.3 mil of fresh serum added in all instances contains the complement and furnishes a like amount in all tests. The heated immune serum contains only antibodies. Its complement has disappeared in consequence of the heating, while its antibodies are not affected by the heat and are potentially fully active. The number of antibodies increase in exact proportion to the amount of heated serum added. Thus, 0.001 mil of heated serum contains twice as many antibodies as does 0.0005 mil; and 1.00 mil contains just 2000 times as many autibodies as does 0.0005 mil.

As the table shows, culturing the different mixtures has yielded the strange and puzzling fact that the microbes contained in the broth culture are killed only if between 0.01 and 0.005 mil of

the heated serum is admixed. If more or less is added, the bactericidal power of the mixture is decreased in the same proportion as the addition of heated serum deviates from the amount between 0.01 and 0.005 mil.

The reason for the decrease of bactericidal power if less than 0.005 mil of heated serum is added seems obvious; not enough antibodies are contained in these small quantities to be effective. But why does the bactericidal power decrease proportionately as more than 0.01 mil of heated serum is added?

The puzzle has never been solved satisfactorily, though the great masters in this field, past and present, have tried their best to find the solution. For want of something better, most of them accepted the makeshift view that upon the addition of more than 0.01 mil of heated serum the individual antibodies are not supplied with sufficient complement and, therefore, lose their bactericidal power. However, the correctness of this view has since been disproved conclusively.

Of the few who dissented and suggested a different explanation Gay came nearest to what I consider the correct viewpoint. He attributed the loss of bactericidal power on increasing doses of heated serum above 0.01 mil to complement fixation by soluble substances given off by the microorganisms. Gay is correct in so far as the loss of bactericidal power is due to complement fixation. He is not correct in so far as the complement fixing bodies do not come from the microorganisms, but from the serum itself.

In order to prove this statement to be correct, I wish to recall the well-known phenomenon that trypsin loses its power to digest casein if blood serum is added. Rosenthal[1] investigated this phenomenon and came to the conclusion that the antitryptic action of the blood serum is due to the presence of digestive split products. This conclusion was upheld by Rusznack[2] among others. He demonstrated that in the anti-anaphylactic state or during recovery from an anaphylactic shock the blood is laden with digestive products and the antitryptic action of the serum is greatly increased. Very recently, I have shown[3] that the antitryptic action of digestive split products is due to their avidity to unite with, or "fix," complement. This avidity to unite with, or "fix," complement is common to all split products of albuminous substances of whatever origin. The momentous importance of this phenomenon from a practical standpoint can to-day only be divined. The few glimpses at its influence upon clinical pathology, given later, may serve to open our eyes to the vista of possibilities. A concrete example is furnished in the Wassermann reaction. Here the digestive split products originating from the decomposition of dead treponemas are, as I have shown elsewhere,[4] the complement fixing bodies that lead to the inhibition of hemolysis and make the reaction positive.

The tendency of albuminous substances to disrupt increases as the temperature rises. Clinically we know that some of our body substances, especially those within the brain, are seriously injured at long continued high fever temperature. Experimentally we know that some of the substances of the blood and milk decompose at a temperature below 50° C. At 58 to 60°, at the temperature when the complement disappears, even more stable albuminous substances decompose; and with superheated steam all of them can be split into their component parts.

That the disappearance of complement upon heating the serum is not due to the direct influence of the heat upon the complement itself, is shown definitely and conclusively by the following experiment. Precipitins are ordinary ferments, or antibodies. They obey the same laws as other antibodies. Consequently, they require complement for their action. If serum containing complement and precipitins specific for egg albumin is heated, the complement disappears and no precipitation occurs upon the addition of egg albumin. If, instead of the serum, the egg albumin is heated and added to the fresh, unheated serum containing both complement and antibodies, precipitation, too, remains absent, because the split products now formed in the egg albumin fix the complement of the non-heated serum and prevent the action of the ferments. This experiment proves further that the split products of the different albuminous substances—serum albumin and egg albumin—are equal in their ability to fix complement.

This new phenomenon—the complement fixing avidity of digestive split products—becomes operative clinically in countless cases of acute and chronic infections. Wherever microbes settle, digestive split products form and accumulate in the surrounding tissues. Whether these split products originate from the host's own tissues in consequence of the activity of the microbes or from the disintegration of the microbes themselves—they fix complement. Thus, a "zone of inhibition" is formed around the site of any microbic settlement, in which complement is fixed the moment it arrives. Under such circumstances pathological foci are established. No matter how many antibodies attain the microbes, they are inert and completely harmless to the germs, if they are deprived of the necessary complement in this "zone of inhibition" before they reach the infesting foes. The number of clinical cases in which these conditions obtain is legion and their clinical varieties and shades are as yet beyond calculation.

In acute cases, in which the infection is not localized and the microbes infest the blood and lymph stream, the body fluids become glutted with digestive split products especially at the time when the reaction of the host's system leads to the killing of germs in large numbers. In cases where the complement is scarce or comes near depletion, any therapeutic substance that causes an additional fixation of complement is a menace to the patient and is apt to hasten death. It is under such circumstances that the therapeutic use of serums may incur the gravest danger and even decide the fatal issue. All serums contain a large proportion of albuminous substances. These albuminous substances are in a labile state from the moment the blood is shed. The complement which serums may contain gradually diminishes and finally disappears even at ice-box temperature for exactly the same reason, though much more slowly, as it disappears when serums

are heated. For instance, no matter how carefully the guinea pig serum used for the Wassermann test is kept on ice, its complement gradually vanishes. This fact is only too well known to those who engage in making Wassermann tests and is a source of constant annoyance and infinite work, as fresh and active serums must be provided continually.

The same is true of all therapeutic serums. The complement they may at first contain is readily fixed by the first split products that form in consequence of aging. As more split products come into existance and these unsaturated complement fixing bodies increase in number, the avidity of the serum for complement grows. In old serums and in fresher serums that have been kept at improperly high temperature this complement fixing avidity may reach that of heated serums. This fact can readily be demonstrated by repeating the experiment given in the above table with such old serums instead of with fresh heated serums. The results are much the same. This complement fixing avidity of serums may develop to a high degree in spite of the fact that their content of active specific antibodies remains unchanged, as in heated serums.

This menace of older, though still fully active, serums has never received attention. Nevertheless, it exists and should get due consideration. It is true, the danger thus pointed out may not exist for the majority of patients who have a liberal surplus of complement at their disposal. But with those whose life trembles in the balance for want of complement, the injection of a serum with high avidity for complement may prove the straw that breaks the camel's back. To-day we do not know how many of these cases we meet in practice. But signs are multiplying that in an uncomfortably large percentage of cases dying of infectious diseases not the lack of specific antibodies but the lack of complement is the cause that kills.

This possible menace should, therefore, always be kept in mind when using therapeutic serums. Definite data on this point are much needed. They can readily be obtained, as the complement fixing avidity of the different serums at their different ages can quickly be determined by simple tests.

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30 NORTH MICHIGAN BOULEVARD.

Hyperemesis Gravidarum.—According to Harbitz this affection is seldom fatal. In one autopsy case he found diffuse parenchymatous degeneration of the liver and kidneys, in another fatty liver, degeneration of the kidneys and heart and in a third marked degeneration of the three viscera. While the chief clinical symptom in these cases was the incoercible vomiting, there were also pregnancy kidney, high blood pressure, edema, etc. There were no convulsions. The autopsy finds differed from those of eclampsia, in which there is a characteristic infarction of the liver not found in the present series.—*Norsk Magazin for Laegevidenskaben.*

A SUCCESSFUL TREATMENT OF PULMONARY TUBERCULOSIS IN THE FIRST AND SECOND STAGES.

BY J. ZACHARY TAYLOR, M.D.,
BALTIMORE, MD.

FOR fifty years the writer has practised on land and sea, and now at the age of 73 is compelled by a failing heart to retire from active practice. And in doing so he wishes to make known to the profession the following plan of treatment of pulmonary tuberculosis which he has found to be almost invariably successful in all but the final hopeless stage.

The following is the composition of a tablet I have always used and which I call the T-B tablet (the drugs used should be the purest and best to be had):

℞ Red iodide of mercury	1/250	gr.
Manganese iodide	1/8	gr.
Sodium cinnamate	1/12	gr.
Copper phosphate	1/24	gr.
Sodium formate	1	gr.
Arsenous acid	1/60	gr.
Strychnine hypophosphite	1/128	gr.
Iodized calcium	1	gr.
Oil of cinnamon	1/20	min.
Charcoal	1	gr.

M. To make one T-B tablet.

Dose.—One tablet to be taken half an hour after each meal, for 15 days at a time; then a rest for 5 days, followed by another 15 days of treatment, and so on alternately. By this plan all danger of arsenical poisoning is obviated and the treatment may be kept up from two to twelve months to perfect the cure. T-B tablets are indicated in all forms of tuberculosis and also in cancer and other blood diseases.

Prof. J. M. DaCosta in the year 1874 said in one of his lectures at the Jefferson Medical College, Philadelphia, that arsenous acid was the nearest approach to a specific that we have for consumption of the lungs, and I have found it to be so. The very first patient I had to treat was cured by this remedy in conjunction with other appropriate treatment, and from that day until I perfected my treatment I have experimented in order to find a cure. (No single drug or remedy will ever be found to cure). This assertion by Prof. DaCosta was made long before the germ theory was brought to the front. I also cured syphilis with mercury and arsenic long before salvarsan was ever dreamed of.

The physiological action of T-B tablets is to revive cell life, promoting rapid corpuscle building, accelerating retarded metabolism and increasing phagocytosis. Sodium formate is a reducing agent and antiseptic, and, when absorbed in the blood, gives off oxygen and vivifies the blood. Sodium cinnamate stimulates phagocytosis. Strychnine is a vital tonic. Arsenous acid is antiseptic, a primary constituent of the living cell, a heart food. Arsenic and iodine feed the ductless glands which play so extraordinary a rôle in the preservation of health and life. The thyroid and suprarenal glands are interdependent, the secretions of the suprarenal are oxygen carriers, those of the thyroid are destructive to pathogenic germs. Manganese is an alterative tonic. Copper is antituberculous, useful in anemia, chlorosis, and diseases of the ductless

glands. Iodized lime is eutrophic, constructive, and soothing to nervous system. Lime starvation and lime assimilation are the real issues behind the masks of vulnerability and resistance in tuberculosis, bronchitis, scrofula, and glandular enlargements. Mercury is alterative and germicidal.

Treatment in Detail.—One T-B tablet one half hour after meals for a period of 15 days, then a rest for 5 days before starting with the tablets again for 15 days, etc. Every day give a tablet or capsule of iodized lime (containing lime, iodine, and starch) gr. ii, creosote ♏ iv, guaiacol carbonate, ♏ ii, 3 times a day, and at the same time 2 grains of quinine. As soon as the stomach can bear it, increase the dose of the iodized lime, creosote, and guaiacol to 2 or 3 capsules or tablets a dose, and the quinine to 6 to 10 grains a day in divided doses.

When hemoptysis is profuse or frequent give 10 to 20 grains of chloride of lime, as needed. For the racking cough give a capsule or tablet of codeine phosphate gr. 1/3, terpin hydrate, gr. ii, phenacetine, gr. ii, every 3 hours and to relieve the paroxysm whenever needed. Locally apply over congested area where there is soreness, pain, pleuritic stitch, tightness and difficult breathing, libradol, which is a mixture of dracontium, sanguinaria, ipecac, melaleuca, lobelia, capsicum, tobacco, and camphor.

Sun and Shade.—One hour before and two hours after sunrise out-of-doors in summer time are worth more to consumptives than the balance of the day. Look at growing plants at this time of day and behold how proud they look. Then again, see how they curl their leaves to shade the life stem of the plant from the scorching noonday sun, and learn a lesson from nature. Live out in the open and bask in the sunlight, seeking the shade when the birds and fowl do on a hot summer day, and be wise. Sunlight and heat through glass do not possess the healing properties that they do in the open. The potency of the sun's rays is intercepted by the glass.

Diet.—No raw eggs, for they, like milk when it disagrees, pass out undigested, thus causing diarrhea. If milk is relished and agrees with the patient, take from one to three quarts a day from a nursing bottle such as used for infants and suckling babes. It is thus quickly assimilated and builds up the entire body rapidly. Clabber, curd, buttermilk, cod liver oil, sliced onion sandwiches, and all foods containing the vitamines in particular, are to be largely used. No cold baths unless the patient is strong and robust. Warm or tepid baths should be taken on an empty stomach in the morning—none at night. A sick lung, like a broken bone, should be put in splints until in a fit condition for service and work. Remember this. Prevent, as far as possible, constipation.

Inhalant.—Take a small lump of unslaked lime (whitewash lime) and pour a little water over it, and as it slakes breathe deep into the lungs the fumes, night and morning. Use wood or metal to slake the lime in. This is a specific inhalant in pulmonary troubles.

The above constitutes the drug and general treatment, which, when conjoined with vaccine injections, actually works wonders. The vaccine treatment forms a wall around the diseased structure to prevent further inroads of the tubercle bacillus. A patient should never be sent away from home when the environments are inviting and healthy, because when a patient improves or recovers in a distant point from home and returns, the disease is liable to return with more virulence than at first. Treat at home if possible, with vaccine and drug treatment combined.

The treatment herein outlined heals, destroys the tubercle bacilli, and causes a cicatrix to form and practically prevents further invasion.

Vaccine injections are given subcutaneously in the arm every third or fourth day, using an all-glass aseptic hypodermic syringe after sterilizing the short needle in boiling water. Before inserting the needle touch the spot with tincture of iodine and apply the same again after the injection. When the catarrhal vaccine is used alone the initial dose should be 5 minims, increased 5 minims at a time up to 15 minims, maximum dose every third or fourth day. The non-virulent tubercle vaccine may be given, combined with every *second* injection of the catarrhal vaccine, in doses of 1 minim, increased 1 minim at a time, but not to exceed 15 minims as the maximum dose. As just said, the catarrhal vaccine is to be injected every third or fourth day, and with every second injection from 1 to 15 minims of the tubercle vaccine is to be administered.

This treatment faithfully and conscientiously carried out will never disappoint you unless some unforeseen complications exist.

My last case was my granddaughter, 18 years of age. By test and examination by the health department of this city, Jan. 9, 1921—swarms of tubercle bacilli were found—distressing cough, hectic fever, hemorrhages, a cavity, etc. After three months of treatment she was pronounced cured, and six months from the date of beginning the treatment she married, and is now a happy wife in splendid health. All I ask is that brother physicians shall try it and honestly carry out the plan as described.

1215 Edmondson Avenue.

THE REAL DANGER IN PRESENT-DAY CASES OF BLENNORRHEA OF THE NEW-BORN.

By WILLIAM MEHL, M.D.,

BUFFALO, N. Y.

THE real danger of blennorrhea is no longer to be found in the gonococcus itself, though we know this to be a virulent infective organism, but in the fact that, thanks to the general use of Credé's prophylactic method, the majority of cases of blennorrhea of the new-born, at the present-day, are non-gonorrheal or inclusion blennorrhea. This statement may appear absurd and contradictory on the surface, nevertheless it points out a serious practical condition to which attention needs to be called for a number of reasons.

The general application of silver nitrate has reduced gonorrheal blennorrhea cases to an almost negligible percentage, with the result that midwives and general practitioners, at present, meet practically only with benign or non-gonorrheal cases. Believing it to be important that all who take care of confinement cases should know the causes of non-gonoblennorrhea and understand the reason why

they come across so many cases of this nature, I have gathered together from trustworthy sources the best available information and offer it with such comments as personal experience suggests. In this I have had the valued advantage of frequent consultation with Dr. Karl Lindner, of the University of Vienna, whose researches in this particular field have cleared up many former difficulties and who is recognized as an eminent authority here.

Shortly after Neisser announced the discovery of the gonococcus it was found that a marked proportion of cases of blennorrhea of the new-born could not be ascribed to the presence of gonococci. Many investigations were made in an effort to learn the exact cause or organism responsible for cases of this peculiar form of blennorrhea. No satisfactory proof was produced to establish that the disease was due to any organism. At last, about 1909, Lindner showed that the non-gonoblennorrhea cases must be ascribed to a definite virus which is transmissible from human beings to apes. He proved, further, that the character of this virus is like that of the virus responsible for trachoma, both being transmissible to apes, and in fact being the only virus transmissible from the eyes of human beings to the eyes of apes and causing a conjunctivitis. The virus responsible for non-gonorrheal blennorrhea is called inclusion virus and is derived from the genital passages of the mother. The non-gonorrheal blennorrhea was, therefore, called inclusion blennorrhea.

A peculiar feature of this inclusion blennorrhea is that it is not influenced in the least, nor is it preventable, by the use of Credé's method. In other words, the instilling of silver nitrate after birth does not in any way prevent the outbreak of inclusion blennorrhea. Credé's, therefore, is a prophylactic only for gonoblennorrhea but not for inclusion blennorrhea.

Inclusion blennorrhea is not a dangerous disease, as the cornea is practically never involved. The disease is a self-limited one, and all that treatment can accomplish is simply to reduce the duration of disease. Even without treatment of any kind there is practically never any involvement of the cornea and hence no consequent loss of eyesight such as we find as a more or less constant rule, in untreated or improperly treated cases of gonoblennorrhea. It is just because the usual cases of blennorrhea of the new-born, under present-day regulation, are found to be harmless that we are now facing a new danger—the danger of having blennorrhea treated lightly.

The number of cases of gonoblennorrhea has by the careful use of silver nitrate been decreased to so small a percentage that the majority of general practitioners and midwives come in contact only with cases of inclusion blennorrhea. Watching the clinical progress of this comparatively harmless disease they are impressed with the fact that it runs a seemingly benign course and never involves the eyesight. As a result many lose their fear of blennorrhea of the new-born, together with their former wholesome respect for it. When blennorrhea of the new-born ceases to be regarded as perilous, the use of Credé's becomes perfunctory, if it is not neglected altogether. Unless the greatest possible care continues to be exercised in every case of blennorrhea neonatorum there are likely to be unfortunate consequences.

Gonoblennorrhea cases, in the first stages, usually show less clinical evidences than the comparatively benign cases of inclusion blennorrhea, and yet the character of the infecting organism constitutes a most serious menace to the eyes.

Midwives are not allowed to treat disease, so that there is small danger of their attempting to treat a case. And yet, since many midwives have had some experience in clinics, where Credé's method was being used, and having noted that practically all cases of blennorrhea of the new-born are cured without especial effort, they gather the impression that the disease is a trivial affair. The practical consequence is that they are inclined to minimize or underrate the importance of calling in a specialist in every case of discharge from the eye. They are not aware that the harmless cases observed in the clinics were those of inclusion blennorrhea, while there is such a thing as gonoblennorrhea which requires prompt and careful expert treatment. The only safe rule for them to follow would seem to be to refer every case of blennorrhea at once to a specialist.

Treatment of Blennorrhea of the New Born.—It is exceedingly important that there be in every case of ophthalmia neonatorum an immediate examination of smears of the secretion and of epithelial smears taken from the conjunctiva directly. If gonococci are found to be present—which is easily determined during the first two weeks of the disease—the case should be referred at once to an eye specialist or a physician experienced in handling such cases. If, on the other hand, the case proves to be one of inclusion (non-gonorrheal) blennorrhea then treatment with a 2 per cent solution of silver nitrate, once a day, is sufficient. First the secretion should be cleaned away carefully in order that the solution of silver nitrate may act upon the conjunctiva and not be used up by the secretion. Cases of this kind always make an uneventful recovery and may be treated successfully by the general practitioner.

In the treatment of gonoblennorrhea we have quite a different proposition. These cases should come directly under the care of an oculist, or one having an especial training and experience in the handling of eye cases. At the beginning of the disease and until it has subsided, treatment should be applied twice a day. This treatment should consist of a thorough and careful cleansing away of all secretions, observing the utmost care not to abrade the corneal epithelium. Following this the lids should again be everted and a 2 per cent solution of silver nitrate applied with a cotton tipped probe. The eye lids should be opened and closed several times so as to make sure that the silver nitrate reaches all the recesses or folds in the conjunctiva. The silver nitrate should then be neutralized by a normal salt solution.

Of late we have learned that the duration of gonorrheal blennorrhea of the new-born can be shortened by the milk treatment which operates fully as efficaciously here as in the case of adults similarly afflicted. The amount of milk to be used in the case of infants is from 2 to 3 c.c., injected

into the gluteal muscles. It is important that the milk shall have been boiled exactly four minutes, after reaching the boiling point. What we look for is a considerable rise of temperature. This is in fact necessary in order that the disease may be overcome. The high fever is a desirable result, as it is followed by the destruction of the gonococci. Under ordinary conditions the treatment should be repeated on the second day. These two injections suffice as a general rule. However, if further treatment appears to be desirable a third and fourth injection may be made on the fourth and fifth day. Experience suggests these final cautions:

1. Regard every case of blennorrhea of the newborn as a possible dangerous gonoblennorrhea until microscopical examination of smears of the secretion and epithelial smears have established the absence of gonococci.

2. When suppuration appears it is advisable to apply a two-per-cent solution of nitrate of silver, twice a day, until a cure is effected.

3. Let it be an absolute requirement, whether enforced by the law of the State or not, to instill in the eyes of the newborn, immediately after cleansing, a one-per-cent solution of nitrate of silver as a preventive or prophylactic. (Departure from such generally approved practice may subject a physician to serious embarrassment.)

4. It is imperative that whatever solution of silver nitrate is used should in no case be older than one month, no matter what the character or color of the bottle or container may be.

417 Franklin Street.

PEDICLED FLAPS AIDED BY FREE FAT TRANSPLANTATION.

By WELLER VAN HOOK, A.B., M.D.,

CHICAGO, ILL.

ALL experienced surgeons recognize the very great advantages inherent in the use of pedicled flaps rather than free ones. The comfort of an assured blood- and lymph-supply enables one to attack with confidence a great variety of complex problems. Even the danger of infection loses some of its terrors when we have this aid of the nutrient pedicle.

My own practice in plastics is to make use of nutrient pedicles in transplantation as frequently as possible, choosing tissues for grafting in such a way that the blood-vessels running into the structures transplanted are left uncut, if they need transection, until after the pedicle has fully served its purpose.

An additional safeguard lies in raising the flap to be transplanted at a first sitting and immediately suturing it back into its original seat with such accuracy that no granulation tissue is produced about the edges. This forces the uncut blood-vessels to dilate, and prepares the flap for its new bed in a most satisfactory manner by assuring adequate vascularization through the pedicle. The actual transplantation takes place two weeks or more after this maneuver has been practised.

I have recently added to this well-known procedure the implantation beneath the flap of a mass of adipose tissue derived from the thigh or other convenient region in order to give mass to the transplanted structures and fill in a defect. The fat healed into its new bed and was lifted with the flap when it was raised and rotated into its final resting-place. It healed without the least irregularity and filled out the space which it was designed to occupy in a very satisfactory manner.

In all plastic work in which the element of appearance is a desideratum, contour, line, and mass are of supreme importance. Color and texture, though of great value, are of far less consequence in comparison. Hence in all such work the operator considers well, before proceeding to operate, what will be the best way to fill depressions or to reduce elevations, how to modify masses so that their surfaces when seen from a little distance will present agreeable masses or, if viewed in profile, will present contours that harmonize with the other beauty elements of the personality.

The transplantation of masses of areolar tissue enclosing fat constitutes a surgical measure surprisingly well adapted to a great number of practical uses. The areolar tissue is sometimes spoken of as the atmosphere of certain structures and organs. Its presence often prevents adhesions and protects delicate structures that would otherwise be exposed to minor traumatism. And it may be used by the surgeon to facilitate the movement of one set of structures upon another.

The principle, then, of implanting fat masses under structures such as skin, or skin and fascia, that are temporarily raised and sutured down preliminary to transplantation with the aid of pedicles is obviously of great practical value.

The case in which this method was successfully put to the practical test was the following:

Girl, ten years of age, presented herself with an extensive defect of the right sternomastoid and neighboring muscles, together with the loss of much subcutaneous fascia and fat, due to the action of a phlegmonous inflammation of the lymphatic glands of the region half a dozen years before. The skin, also, had sloughed away, but had been replaced by new-grown cutaneous tissue, which was very thin, drawn here and there by bands of scar-tissue, and discolored on account of its irregular blood supply. Moreover, in the region of the lost sternomastoid there were several bands of dense scar-tissue which seriously limited the movements of the head and neck and threatened to bring about permanent derangement of the cervical statics.

The right side of the neck from the hyoid level to that of the supraclavicular space and from the region of the scaleni forward almost to the thyroid neighborhood was so defective as to present a most unsightly hollow, bordered outwardly by the longitudinally contracted bands. It was planned to transect or even to dissect out the scar-tissues in so far as they caused deformity or interfered with movement; to utilize fatty connective tissue to fill out the hollows of the neck and to support and to render mobile the skin; and finally it was found necessary to readjust and to replace skin tissue.

At the first operation the scar-tissue was transected or excised and a little minor plastic work upon the skin was carried out. But the principal effort consisted in raising a large flap from the scapular region where the skin was loose and pliable, with a pedicle lying upon the shoulder itself. This flap was raised with its associated thin layer of subcutaneous connective tissue, the bleeding vessels were clamped until hemostasis had occurred, and then stitches were introduced to hold the flap in its original bed, except that at one side of the graft the wound was left open for the reception of the fat which was to be implanted.

At this stage gentle pressure was applied by the whole hand of an assistant over the graft, to still finally all oozing while the fat from the thigh to fill the defect in the neck was prepared for its temporary resting place.

A generous incision was accordingly made in the outer surface of the thigh and the thick fat of the part exposed. With a sharp finger-knife the skin was separated from the fat quite widely and then the fat-mass was separated with the same knife from the deep fascia. It was then easy to remove the large fat-mass by cutting away its lateral attachments. A large quantity of this tissue was thus quickly obtained and each piece removed was at once laid carefully under the pedunculated skin flap. The suturing of the flap was then completed. The thigh wound was quickly closed.

About four weeks later, the wounds having healed and light massage having been kept up, the child was again anesthetized. First the anterior wound was reopened and all oozing stopped after minor improvements in local conditions as to scar deposits had been made. Then the flap was raised, together with its associated fat-mass, extreme care being taken not to disturb the relations of the fat to the skin. The condition of the fat and the transplanted fat, which had grown closely to it, was excellent. The capillary return circulation quickly responded after pressure with the finger and there was almost no edema.

The flap was then turned to its new position and the fat carefully adjusted to fill in the mass defect, which gave rise to the most disfiguring phase of the lesion.

Slight puckering occurred at the inner margin of the pedicle, but the main masses of the large flap and the transplanted fat fell into place almost without a fold.

Primary healing occurred throughout and only slight stretching of the scars at the lines of union occurred. The general appearance was so satisfactory that a further intervention to smooth up the relaxed scars may not seem necessary when the patient is again seen in a few months.

31 NORTH STATE STREET.

NEW IDEAS ON THE CAUSATION OF VARICOSE VEINS, LEG ULCERS, AND PRURITUS ANI.

BY GEORGE EDWARD BARNES, B.A., M.D.,

HERKIMER, N. Y.

ON March 2, 1920, I gave an address before the local county medical society in the course of which I presented some original ideas on the causation of varicose veins and leg ulcers. I wish to place these ideas in more permanent form.

Of course, the usually described factors in the causation of varicose veins—superficial location of veins, length of the column of blood moving against the force of gravity, paucity of valves, obstructions to the flow of blood, etc.—retain their validity. But why is it that, when these factors are active, some cases do and others do not develop varicose veins? For instance, why do some pregnant women develop varicose veins while others do not? This is a real, scientific question. The very important and unknown cause is pathetic affectivity, for example the emotion of love, which radiates through the nervous system to the blood vessels and causes them to relax. Indeed, I believe this cause to be the most important and usually the primary one, for apparently it must act in ordinary cases before the other accessory causes can act. In proportion as it is great, the less active may be the accessory causes, and in proportion as it is slight, the greater must be the accessory causes. Fortunately the activity of pathetic affectivity can be quickly detected in the relaxed arteries by the skilled finger.

There is indication that hypothyroidism predisposes to varicose veins. We should expect this, for we find that hypothyroidism is a frequent accompaniment of pathetic affectivity. Hypothyroidism would tend to weaken the walls of the veins.

It appears that the inner lower aspect of the leg is particularly affected by affective currents, for many nervous people say that when they are momentarily disturbed by any happening they feel a thrill or tingling in this region. Why this local susceptibility should exist I cannot say. However, it may be that the veins of this region are acted on with exceptional facility by affective currents. Similarly, in another region where varicose veins frequently occur, *i.e.* in and around the anus, we often find a disturbance in the nerves in the form of pruritis. By the way, this ailment is not caused by any infection, as is now generally believed, for it occurs characteristically in certain "nervous" people who, are disturbed by pathetic affectivity the moisture of the region acting as a further direct excitant to the over-sensitive nerve bulbs. (Abrasions arising from careless scratching aggravate the irritation.) A gentle cleansing and the application of a drying powder often stops the itching *at once*—a result that could not be obtained if there were a causative infection within the tissues. Any existing infection is secondary, not caustive, and pathetic affectivity is also the cause of the excessive moisture which predisposes to infection.

A form of obstruction to the flow of blood through the internal saphenous veins which I have never seen mentioned may sometimes be a factor in causing varicosity in these veins. While a person is reclining on the side one leg may be placed over and across the other above or below the knee so as to press on the vein.

Since varicose veins are frequent cause of leg ulcers, what I have said about the causation of the former applies to the causation of the latter.

Furthermore, I have observed that the skin of some people, particularly nervous people, is often more easily irritated in the lower tibial region than elsewhere. This irritability is most definitely shown by the eruptions in this region caused by the ingestion of certain substances. These eruptions seem to bear a definite relation to the irritability of the nerves in this region. Though I cannot explain the phenomenon, it seems that this odd local irritability of the skin is of importance in the etiology of ulcers. (It is not dependent upon varicosity.)

Much can be accomplished in overcoming the effects of pathetic affectivity by administering drugs, particularly those of the digitalis group, to increase the tonicity of the heart and blood vessels.

For further information on affective disturbances and neurasthenia see the following articles by the author:

1. Affective Activity, Emotions as the Cause of Various Neurasthenic Bodily Diseases, *N. Y. Med. Jour.*, April 4, 1914.

2. The Rationale of Neurasthenia and of Disturbances of Arterial Tension, *Boston Med. and Surg. Jour.*, October 18, 1917.

3. The Etiology of Disturbances of the Heart Beat, *Boston Med. and Surg. Jour.*, October 25, 1917.

4. Vasodilators in the Treatment of Syphilis with Arsphenamine, *Boston Med. and Surg. Jour.*, May 15, 1919.

5. The Explanation and Treatment of the Effort Syndrome, Neurocirculatory Asthenia, (Soldiers) Irritable Herat, MEDICAL RECORD, July 26, 1919.

6. How to Palpate Arteries to Determine Arterial Tension and Blood Pressure, *American Medicine*, December, 1921.

7. Etiology and Treatment of High Blood Pressure, Arterial Hypertension, and Arteriosclerosis, *N. Y. Med. Jour.*, January 18, and Feb. 1, 1922.

125 MARY STREET.

THE HOMIGRADE THERMOMETER.

BY F. E. ASPINWALL, M.D.,

WILSEYVILLE, N. Y.

THE Homigrade thermometer scale and its system of temperature measurement are based on the following two facts: (1) The freezing point is also the vital heat zero. In any organism or part thereof this or any lower temperature is incompatible with vital functioning. (2) The human normal within the radius of common sensation is man's natural unit of temperature value and criterion of temperature measurement. With it he compares all of his sensations of temperature and thus estimates temperature values. These two points in the scale are cardinal and deserve fitting figures to mark them and express their values.

With these ideas in mind, 0 was placed at the freezing point and 270 at the boiling point of water, the latter figure being chosen because of consequent desirable figures at other important points in the scale, especially 100 at the human normal. The two fixed points of the scale, therefore, are 0°H. and 270°H., the latter figure, like the number of degrees in a circle, containing even nines.

Like the compass the Homigrade thermometer has four cardinal points, each being marked with the most perfectly fitting figure, as follows: 100 marking the human normal and the upper limit of normal summer heat; 50 marking the line between spring and summer and summer and autumn temperatures; 0 marking the point between autumn and winter and winter and spring temperatures, the point at which with a falling temperature ice forms and with a rising temperature ice melts; —50 marking the lower limit of normal winter cold. These points, therefore, divide the seasonal normals into measures of 50 degrees each.

Thus we have a scale absolutely fixed, with short degrees that necessitate comparatively little use of fractions, and with the most perfectly fitting figures at all important points in the scale. Also the value of every degree and every figure in the scale is definitely and clearly understood, inasmuch as the human normal, which is expressed by the figure 100, is a measure of 100 degrees from the freezing point, each degree therefore being one per cent. of that measure. Hence, every figure in the scale expresses the temperature relatively to both the freezing point and the human normal, a definitely understood measure from the former and a true percentage of the latter. Thus every figure furnishes two definitions for the temperature that it expresses.

In the clinical use of the scale its advantages become clearly apparent, inasmuch as it expresses every temperature as a percentage of the human normal. Thus one knows instantly the percentage of each variation from the normal. And it is most remarkable that it is by variations of 5, 10 or 15 degrees respectively that the temperature reaches a point that is usually safe, dangerous, or fatal. Thus 100°H. (taken preferably in the axilla) signifies a normal temperature; 105°H. or 95°H. a safe departure, often lasting only a day or less, when there is a return to normal; 110°H. or 90°H. a dangerous departure; 115°H. or 85°H. usually a fatal departure.

These figures greatly simplify clinical temperature studies, besides throwing a flood of light on the whole subject. Indeed, the entire Homigrade system is so very simple and natural that but a few minutes' study enables one to master it perfectly.

Notwithstanding the simplicity and naturalness of the Homigrade system it took many years of desultory thought and finally several months of exclusive study to bring the scale out of the unknown; but once it was brought to view its remarkable features and advantages were almost instantly apparent, and it was at once seen to be as perfect as the numerals that compose it; never therefore to be changed the least fraction of a degree.

The socalled Absolute scale which was heralded with no little enthusiasm a few years ago has fallen because it was built on the shifting sands of error. Other scales will fall or be discarded for the same reason, or because their figures are misfits, meaningless or misleading as to values, or because their degrees are too long for use without a constant resort to fractions for ordinary precision. The Homigrade scale will endure because it is founded upon truth and is itself ideally perfect.

Medicolegal Notes.

Liability of Unlicensed Physician for Improper Diagnosis.—A Chinese physician, who, being consulted by a victim of tuberculosis, made merely a superficial diagnosis, informing the patient that his trouble was not tuberculosis, but a disease of the kidneys, and who advised the patient to discard the diet prescribed by other physicians and to take herbs, to the patient's detriment, was held liable in damages under the rule that when one holds himself out as a physician or surgeon, whether licensed or not, and accepts employment as such, he assumes toward the obligation to exercise such reasonable care and skill in that behalf as is usually exercised by physicians or surgeons of good standing of the same system or school of practice in the community in which he resides, having due regard to the condition of medical or surgical science at the time.—Hansen v. Pock, Montana Supreme Court, 187 Pac. 282.

Powers of Local Boards of Health as to Preventing Spread of Garbage.—The Court of Appeals of Maryland holds that a bill by the board of health of Baltimore County to enjoin the City of Baltimore, and one under contract, from spreading garbage in Baltimore County, in that it would prove a source of disease and pestilence and a menace to the health of the people, at least required an answer, in view of Code Pub. Loc. Laws, art. 3, § 247, authorizing the board to apply for injunction to restrain nuisances such as were alleged. The court said, in part: "This is one of the delicate cases courts are sometimes called upon to decide. On the one hand, we have involved what is alleged to be the health of the communities near where the garbage was to be placed, and, on the other hand, we have a large city, with many tons of garbage to be disposed of, and the comfort, safety, and health of its citizens require the garbage to be collected and disposed of in some proper way. . . . It is not possible for courts to always know in advance what the consequences of acts complained of will be, if permitted, but when such facts as are in this bill are admitted, it would scarcely be worth while for the Legislature to authorize and empower either a local board of health or the State board of health to apply for an injunction to restrain and prevent such alleged nuisances, if the parties complained against can simply demur, and not be called upon to answer."—Mayor, etc., of Baltimore v. Coglan (Md.) 115 Atl. 43.

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TRAUMATIC AND SPONTANEOUS RUPTURE OF HYDROCELE.

RUPTURE of a hydrocele is not a rare accident and usually does not offer any gravity. Normal physiology and anatomy give data of only secondary importance as to the site and manner of rupture. Rupture gives rise to pain in the scrotum, the disappearance of the preexisting hydrocele, subcutaneous edema, ecchymosis, and occasionally the formation of a hematoma. After rupture, the hydrocele may not recur, but generally the fluid collects in the vaginalis, then presenting the same characters as those of hydrocele. There is a fact which dominates the pathological history of the vaginalis in cases of hydrocele, followed by rupture, no matter what may be the modality or cause of this rupture, namely, the constant considerable thickening of this serosa. It would appear that Reverdin was correct in his surmise that in cases of hydrohemacele from rupture of the vaginalis there are always signs of a chronic inflammatory process made evident by thickening of this serous structure which may even be so considerable as to give the membrane a cartilaginous consistency. Burdet also maintained Reverdin's point of view, while fourteen cases were collected by Bailly in which at operation the vaginalis was thick-lined to the extent of from three to five millimeters. The thickening is not uniform, but occurs in areas giving the vaginalis an irregular aspect. There may be a series of calcareous plaques, and even complete calcification of the vaginalis has been observed. Usually, however, the lesions are composed of irregular whitish or yellowish areas which are a certain indication of advanced fatty degeneration. Briefly, the lesions are thickening of the vaginalis from sclerosis, and hyaline degeneration of the connective tissue sclerosis, which is so common when the sclerosis is of long standing in the arteries, viscera, and serous membranes. The lesions arising in the vessels of the vaginalis, especially in the paravaginal space, are considerable. Their walls, like the serosa, undergo degeneration and then rupture. Changes in the fibrous tunic are represented by a more or less marked thickening but it can be peeled off from the subjacent vaginalis. The vessels running through it are thickened and dilated.

As to the site of rupture of the distended vaginalis, it would appear that this occurs preferably at its upper juxtafunicular part which normal anatomy shows to be the weak point of the serous membrane of the testicle. This point of view has been confirmed by Delore in spontaneous rupture, but for the traumatic variety many observers believe that the point of application of the traumatic agent is more important. In ten cases of operation for ruptured hydrocele the rupture was found at the upper part in four, four times at the antero-inferior aspect, once below and to the outer side, and once near the raphe. It is also possible that the point of application and direction of the traumatic force may sometimes explain the position of the rupture, but when the vaginalis is torn at several points, it is more likely that these occur at areas of pathological change in the serous membrane.

The shape and size of the rupture are also variable. These may be a slit with even or ragged edges or a rounded or stellate opening, or simply a small aperture through which the hydrocele fluid escapes. It is probable that the fibrous tunic remains intact, its rupture being exceptional. The small vessels are involved in the rupture and hence hemorrhage adds to the size of the swelling. Hematoma is not infrequent when the hemorrhage is considerable and will be seated in the potential cavities of the region, namely, the paravaginal and scrotal spaces. A hematoma may also develop in the cellular tissue of the scrotal septum. In fourteen cases the hematoma was as follows: eight times there was both a vaginal and a paravaginal hematocele; a vaginal hematocele in two, once a paravaginal and scrotal hematocele and lastly, one case of parietal hematocele from infiltration, the vaginalis containing typical hydrocele fluid tinted pink.

The blood comes from either ruptured veins or arteries; the capillaries are distended in hydrocele, and the very vascular fibrous tunic is an evident source of the loss of blood. It is possible that when the bleeding takes place from the vessels of the vaginalis the blood will collect in the cavity of this membrane, and when it is due to injury of the vessels of the fibrous tunic the blood collection will be both intra and extravaginal.

SYNDROME OF TEMPORAL LOBE TUMORS OF THE BRAIN.

THE many symptoms presented by tumors in this locality give special interest to the syndrome, for naturally in brain tumors we first think chiefly of such symptoms as result from intracranial compression. Epileptoid crises are especially common in these cases and according to Mingazzini psychic symptoms of some sort are practically never absent. In an article by Constantini in *Il Policlinico*, for November 11, 1921, xxviii, 11, two case histories are given. In the first the initial symptoms were psychic disorders—a depressive state, followed after several months by disorientation, motor dis-

quietude, mutism, lacrymose state, sitiophobia, inability to comprehend questions and orders, and among nonpsychic symptoms, headache and marked vertigo. The tumor was seated in the posterior part of the left temporal lobe. The other patient presented at the outset psychic disorders with great motor restlessness, coprolalia, ideas of persecution, disorientation, suicidal tendencies, transcortical sensory aphasia; later there were depression, mutism, refusal of food, insomnia, etc. In this case the seat of the neoplasm was the median-posterior portion of the fusiform lobe and third temporal convolution, with some involvement of the second and first.

In cases with epileptoid seizures there have also been noted post-convulsive confusional states with hallucinations having a religious coloring, oniric delirium and visual hallucinations under the form of an aura. Hallucinations of the other special senses are even more common. In some cases euphoria is present, as in frontal tumors: in others bulimia or alteration of character. As to the rationale of these symptoms the greatest divergency is seen. A number of psychiatrists look on the temporal lobe as the seat of definite psychic functions. But the great number and variety of psychic symptoms make this physiological explanation confusing and unsatisfactory. The termination of these cases in apoplectic ictus is also paradoxical, although of course there are minute hemorrhages in the neoplastic tissue.

In tumors of the left side the psychic symptoms may be brought in association with the sensorial aphasia so often present. Knapp mentions paraphasia in this connection as having marked diagnostic significance and Oppenheim particularizes amnesic aphasia as a symptom of left-sided temporal tumors. But aphasia of any type is often absent. Mingazzini, in the interest of diagnosis purely, makes four regions each with its clinical picture. These are the anterior half or two-thirds of the convex aspect of the temporal lobe, the posterior half or third, the inferioposterior aspect, comprising the lingual lobe and posterior half of the fusiform lobe, and the region of the hippocampus and anterior extremity of the fusiform lobe. Leading symptoms of tumor in the first region are defective motility, and on the left side speech disorders; in the second region hemiparesis of the opposite side including some ocular pareses; in the third region general symptoms are chiefly absent and the focal symptoms are pareses of some of the ocular muscles or the facialis, hemiparesis, and hemianesthesia. In the fourth region there are hallucinations of smell and taste. This special symptomatology for regions is not only meagre in the extreme but often overlaps. Since the neoplasms are usually not limited to these arbitrary regions the totality of the clinical picture varies indefinitely. To have value the locality of the point of origin should be determinable, for after the progress of the tumor the number of symptoms, as already seen, is rapidly increased.

AUTOSEROTHERAPY OF CARCINOMA.

THE opinion has repeatedly been expressed that on account of the strong individuality of cancer it cannot be reached save through an autogenous extract. It had been proposed to use both the blood serum and tumor extract of the patient, the latter being practicable, of course, only when extirpation has been practised. In addition to any specific antidotal properties such products would also act by protein shock. The first efforts in the direction of autoserotherapy of cancer were made by Widal, Abrami, and Brissaud in 1913, but the results were practically negative. In 1921 Gaudier of Lille published the outcome of 24 cases of inoperable malignancy, including cancer of the tongue and breast. The effects were an improvement in all directions. Both Widal and Gaudier practised only autohemotherapy. In *Le Progrès Médical* for February 18, 1922, l, 7, Chauvin and Bec give their experience with the same resource. They used the simple technique of Gaudier, which consisted of taking 20 c.c. of venous blood from the patient and reinjecting the serum on the following day. The injections were repeated every third day. The drawn blood was not kept in the incubator for fear that autolysis would occur and anaphylactic properties develop. Room temperature was preferred. Gaudier had learned that intravenous injections were unsafe, and the authors threw the serum into the subcutaneous cellular tissue. Thus used, no reaction of any kind was noted, and while blood counts are not mentioned there was no evidence of a nonspecific reaction.

The first case was one of inoperable cancer of the uterus. The vagina was simply kept clean and blood serum injections were given every three days. Although the general condition improved in several directions, the mass did not diminish to the touch. Death took place rather suddenly and there was no autopsy.

In a second similar case there was no improvement of any kind noted, although the injections were kept up for over five weeks. The third patient was a man of 60 with a cancerous growth of the cheek. It had responded nicely to radium but there was a recrudescence later in which radium would have been contraindicated. Six injections of blood serum were quite without effect, either local or general. The authors' experience was therefore less favorable than that of Gaudier and even Widal's, for the latter obtained some positive benefit, although not in true carcinoma. Gaudier advised at least 20 injections, and the most given by the authors in any case was 11. Of the two women with cancer both were in poor physical condition, presenting fever and the yellowish pallor of the disease. The cancer in the man had attained the size of a mandarin and there was much lympnode enlargement.

It may be recalled in this connection that Bier once obtained most violent local and general reactions from injecting pig's blood into cancer patients (by local is meant reaction in the tumor itself).

This was probably protein shock. The authors are naturally puzzled over the negative outcome of their experiments, although they adhered as far as possible to Gaudier's technique. The latter's report was most thorough, he having made use of controls throughout; and in some subjects, even in advanced cases with cachexia, the improvement was very striking, this class of patients resuming their previously active lives.

The Onion in Medicine.

The ancient Egyptians it is said, were forbidden to eat the onion, garlic, and leek. According to the priests of Pelusium the onion was barred because it caused a flow of tears, hunger, and thirst, and hence was manifestly out of place in fasts and during religious ceremonies. It did not seem right to weep on occasions of joy or to be tormented with hunger and thirst on days set aside for fasting. The Hebrews regarded the onion purely for its culinary value. The Greeks were fond of both onions and garlic. The former were apparently used when drinking to increase thirst and enhance the pleasures of the cup. But in the palmy days of Rome the two vegetables had become largely the badge of the rabble. In the Middle Ages any well-set table contained a plate of red onions. The chief repute of the onion in medicine was as a diuretic and remedy for dropsy. This belief has persisted up to the present time and it is somewhat strange to find that as early as 1853 onions and a milk diet were pronounced the best remedy for dropsy. In 1868 Trastour reported that a case of parenchymatous nephritis, with edema and albuminuria, cleared up under the onion-milk regimen. In addition to anasarca of both legs there has been a hydrothorax. The treatment had provoked a strong diuresis. In 1910 Mongour saw a still more remarkable case of cirrhosis of the liver with ascites clear up, after three days of onion eating, with a critical polyuria. Cruchet had seen a patient with dropsy recover after a period of onion eating—15 or 20 daily. In 1912 Dalche published his article on the "onion cure." He spoke of a case of a three-quart diuresis produced in a dropsical patient by this resource. During the war Leclerc to whom we are indebted for the preceding information (*La Presse Médicale*, February 25, xxx, 16) frequently witnessed this diuretic action in soldiers, notably in a Senegalese with serous effusions and dropsy due to nephritis.

Extraprostatitis.

The continual introduction into medical literature of new terms believed to be applicable to newly recognized conditions is a custom to be deplored, especially when, as usually happens, some term in familiar use covers the condition satisfactorily. The situation is the more confused when the old designations are ignored entirely, this omission leaving the reader in doubt of the attitude of the writer toward the old nomenclature. As a case in point we may cite an article by Aversenq in the *Journal d'Urologie* for December, 1921, xii, 6, entitled "Sur les extraprostatites d'origine uréthrale." The author had made some elaborate studies on periprostatic and perivesical abscesses which included injection of the connective tissues with colored gelatine. Pockets or potential cavities were found on either side of the posterior periprostatic aponeurosis, which distinction suggested the use of a term "extraprostatitis" as a contrast to periprostatitis. It should signify the presence of suppuration in the extraprostatic spaces which is cognate with similar suppuration in the extravesical space. According to the author these terms were first proposed in 1910 and again in 1913, but whether by himself or others is not mentioned. The ordinary medical reader would doubtless note the complete omission in this article of the term paraprostatitis, which leaves him quite in the dark as to whether this is regarded as an entirely distinct condition, or as a term to be superseded by one more appropriate. The author refers specifically to a case of extraprostatic phlegmon originating in urethral infection, with perirectal extension.

News of the Week.

Sale of the Medical Record.—This journal has been sold to Mr. A. R. Elliott of New York City. Its last issue as an autonomous medical weekly, under the present editorial management, will be that of April 22.

Mortality from Typhoid Fever in the United States.—The Department of Commerce, through the Bureau of the Census, announces a steadily decreasing mortality rate from typhoid fever. The figures show a decrease in the registration states from 13.3 per 100,000 population in 1916 to 7.1 1920. In 1920, of the States in the registration area Massachusetts and Wisconsin share the honor of having the lowest rate (2.5), while the highest (22.4) appears for South Carolina. Of the eleven States showing rates by color, the lowest rate for the white population was 3.6 and the lowest for the colored was 4.6, both for New York State, while the highest rate for the while population was 19.1 for Kentucky and that for the colored was 30.2 for the same State. Of the 33 States tabulated for 1919 and 1920 only nine show higher rates for 1920 than for 1919.

Precautions Against Typhus Necessary.—Colonel Edward C. Gibbs, who was sent to Poland by Health Commissioner Royal S. Copeland to study typhus conditions, states that strict precautions are necessary to prevent the scourge from spreading to this country. He was informed by the Soviet Minister of Health that there are only 3,000 doctors for the entire 30,000,000 population of Poland. Rovno, the principal port of entry for people coming from Russia, is badly overcrowded and typhus is rife. The death rate from the disease is said to be 25 per cent.

Uniform Budget System for State Hospitals.—A uniform budget system for all State hospitals and those that receive State aid became effective in Pennsylvania on March 1, according to an announcement made by Dr. John M. Baldy, Commissioner of the Department of Public Welfare. Pennsylvania is the first State in the Union to have uniformity in its hospital accounts. Such

a uniform system of accounting will furnish information to the Legislature in regard to State and private institutions asking appropriations, and according to Dr. Baldy will eliminate the log-rolling during legislative sessions in connection with these appropriations. It will also make possible a comparison of the work done by one hospital with that of another and will lead to a more equitable distribution of funds.

To Investigate Alleged Irregularities in Issuance of Licenses.—Governor Small of Illinois has appointed Dr. E. P. Sloan, president-elect of the Illinois Medical Society, the third member of a committee of physicians who are to investigate alleged irregularities relative to the issuance of licenses and certificates by the State Department of Registration and Education. Dr. W. L. Noble of Evanston is chairman of the committee, and Dr. W. A. Evans secretary. The names and addresses of the committee have been published, with an invitation to all who have any information bearing on examinations or the issue of licenses to voluntarily communicate with one or all of the members.

Kings County Doctors Discuss Workmen's Compensation Act.—A joint meeting of the Medical Society of the County of Kings and the Professional Guild of Kings and Queens Counties was held on the evening of March 30 for the purpose of establishing a better understanding between physicians and insurance companies in relation to the Workmen's Compensation Act. Among the speakers were Henry D. Sayer, Industrial Commissioner of the State of New York, and Thomas D. Curtis, vice-president of the State Federation of Labor. It was argued by the doctors that if the bill which has been introduced in the State Legislature at Albany during the past several years is eventually passed the compensation act will indeed become worth while, as the bill will give injured employees the free choice of physicians and thus eliminate the insurance companies' practice of dictating to employer and employee as to the selection of a doctor.

Clean Up Week.—The week beginning April 17 has been designated as Annual Clean Up Week in New York State by Dr. Hermann M. Biggs, Commissioner of Health. In a letter to mayors, village presidents, and boards of health the Commissioner calls attention to the practical importance of civic cleanliness in the promotion of order, decency, and public health. Local authorities are urged to take all necessary steps to secure cooperation of citizens in the collection and disposal of accumulated refuse. Suggestions for the formation of local committees and the organization of the work in order to obtain effective results are included with the letter.

Epidemic Encephalitis Increases in New York.—The New York City Health Department reports that there has been an increase in the number of cases of epidemic encephalitis in this city during the past two weeks. About 300 cases of the disease have been reported since the first of the year, with 70 deaths. In 1920 there were 654 cases and in 1921 528 cases. There were five more deaths from the disease during the week ended March 25 than during the corresponding week of 1921. The increase in the prevalence of the disease is not considered sufficient to cause alarm.

To Aid Mental Health.—In a State-wide effort to inform the general public how to preserve mental health, the Mental Hygiene Committee of the State Charities Aid Association has obtained the voluntary services of thirty-one psychiatrists and other authorities on mental hygiene for public addresses. These lectures will emphasize the fact that mental health is within the reach of many people who are at present afflicted with mental disease. Speakers will be made available upon application to Stanley P. Davies, secretary of the committee, 105 East Twenty-second Street.

Infant Death Rate Inquiry.—The United States Public Health Service advocates a Government inquiry into the reasons for the annual death toll of American babies. In a statement issued April 7 the service states that more than 100,000 of the 250,000 children who die every year die from causes connected with their birth and the need of further study and investigation of these causes is urgent.

Hospitalization Measure Passes Senate.—The disabled soldiers' hospitalization bill, appropriating $17,000,000 for increasing hospital facilities for disabled service men, has been reported to the Senate without changes in the form in which it passed the House. The bill will be acted on at an early date.

Tonsil Operations Increase.—According to a recent report of the Hospital Bureau of the Public Health Committee of the New York Academy of Medicine, the percentage of children needing tonsil and adenoid operations has increased from 10 per cent. to 15 per cent. in the last ten years. Tonsillitis, it is asserted, causes more absences from school than any other one illness. To relieve the general hospitals of the large number of tonsil cases with which they were overtaxed, the Tonsil Hospital, at 153 East Sixty-second Street, was established about two years ago. It has a capacity of 2,000 cases a year, and during the year 1921 over 800 free tonsil operations were performed for those unable to pay the usual fee.

American Physicians Meet in Rochester.—The American Congress of Internal Medicine and the College of Physicians held its sixth annual meeting in Rochester, Minn., during the week of April 2. The program included four days of clinical work and conferences at the Mayo Clinic and a two-day session at the University of Minnesota School of Medicine. Changes in the constitution and by-laws of the organization have been agreed upon which, according to the statement of Dr. Frank Smithies of Chicago, secretary-general of the organization, will place the practice of internal medicine on the same high plane ethically that surgery now enjoys through the efforts of the American College of Surgeons. The requirements for fellowship in the American College of Physicians are as follows: Each must be a graduate of a medical school of the first rank. He must be a member in good standing of his local, state, or national societies. He must be a licentiate in the State wherein he resides, or engaged in practice or scientific research in a hospital or recognized institution. He must be at least 25 years of age

and have received his diploma at least five years before receiving his fellowship. He can be in no way connected with any organization which commercializes the practice of medicine. In addition, it is required that the applicant for membership be engaged in teaching or research, in charge of a hospital of 100 or more beds, or affiliated with medical or laboratory departments of the United States or Canadian Army, Navy, or Public Health Service. In default of these attainments, he must have submitted a clinical report of fifty patients who have been actually under his care.

National Hospital Day.—The celebration of National Hospital Day last year was found to be so generally helpful that the United States Public Health Service heartily approves its repetition this year on Friday, May 12, the anniversary of the birth of Florence Nightingale. On that day the public will be invited to visit the hospitals in their vicinity as guests and to familiarize themselves with their methods and aims.

Hospital Notes.—The First Institute of Podiatry has purchased property at 51 and 53 East 124th Street, where it will erect a clinic for the treatment of foot ailments and a school for the training of students of scientific podiatry.

The West Texas Hospital, located at Lubbock, was opened to receive patients on March 15. The cost of the new institution was $125,000.

A State charter has been granted to the Drayton Community Hospital Organization, which plans to build a community hospital at Drayton, N. D.

The Allentown (Pa.) Hospital Association has purchased a tract bounded by Gordon, Chew, West and Seventeenth Streets, upon which a new hospital building will be erected.

The Convalescent Home for Hebrew Children at Rockaway Park, New York, was formally dedicated on April 8. The old buildings have been renovated and two new wings added. The home is now open all the year for the care of crippled children.

A campaign has been initiated by the American Legion posts of Minnesota to raise $250,000 for an American Legion Memorial Hospital to be built at Rochester, Minn.

The cornerstone of the Northern Liberties Hospital, Philadelphia, was laid on April 2. Governor Sproul, Mayor Moore, and prominent clergymen and physicians participated in the ceremonies. The new hospital will cost approximately $100,000.

The board of directors of the Bushwick Hospital, Brooklyn, contemplates the erection of a new wing to the institution at Putnam and Howard Avenues.

What was formerly known as the Baer Maternity Hospital at Allentown, Pa., has changed its name to "Baer Hospital for Women." The change has been made because the old name was misleading, leaving the impression that only one line of work was done at the institution, whereas surgical work in general is practised at the hospital.

The Oklahoma State Soldier Hospital Commission has awarded the contract for the soldiers' memorial hospital to be built at Enid, Okla., at a cost of over $200,000. Plans have been prepared for additions to the Warrensville (Ohio) Tuberculosis Sanitarium, which will double the capacity of that institution. The estimated cost of the proposed improvements is $250,000.

The new municipal hospital at Youngstown, Ohio, is about completed and will be ready to turn over to the city in a short time.

A campaign is being conducted to raise $1,000,000 to build, equip, and endow the new Homeopathic Hospital of Rhode Island, located in Providence.

Tentative plans have been approved for a $25,000 addition to the Irene Byron Tuberculosis Hospital at Fort Wayne, Ind. Dr. Charles Teall has been appointed to the Board of Managers of the hospital for a term of three years.

The West Duluth Commercial Club has started a drive for funds for the proposed Miller Hospital and free dispensary to be located in the western section of Duluth, Minn.

The formal dedication of the new $3,000,000 hospital building of Mount Sinai Hospital, New York, took place on April 9, when Myron S. Faulk, chairman of the building committee, formally presented the buildings for acceptance by George Blumenthal, president of Mount Sinai.

Ground has been broken for a new hospital to be erected in San José, Cal., at the corner of Fourteenth and Santa Clara Streets. The hospital will have 85 rooms and be thoroughly modern in every respect.

The Board of Hospitals and Homes of the American White Cross of the Methodist Episcopal Church is conducting a campaign to raise $175,000 for the hospital building being erected at Eighth and Faraon Streets, in St. Joseph, Mo.

The Fairmont Hospital, at 1055 Pine Street, San Francisco, has been sold to Dr. A. W. Morton for $150,000, and was opened April 1 as the Santa Fé Hospital with 100 beds. This hospital has no connection with the Santa Fé Railroad.

The contract for the $500,000 soldier memorial hospital at Muskogee, Okla., has been let.

Testimonial to Dr. George E. de Schweinitz.—A banquet was tendered Dr. George E. de Schweinitz of Philadelphia by the Philadelphia County Medical Society on the evening of April 4 in honor of his election to the presidency of the American Medical Association. The speakers included, in addition to the honored guest, Dr. J. Norman Henry, President of the Philadelphia County Medical Society; Dr. Edward Martin, Pennsylvania State Commissioner of Health; Dr. Hubert Work, President of the American Medical Association and Postmaster-General of the United States; former Surgeon-General Dr. William C. Braisted; Dr. Ross V. Patterson, Dean of Jefferson Medical College, and Dr. John G. Clark, Professsor of Gynecology in the University of Pennsylvania. By arrangement, the subjects discussed had to do mainly with medical education, preliminary or preparatory, undergraduate, and postgraduate, including a form of university extension. Dr. Hobart A. Hare acted as toastmaster.

Dinner to Dr. S. Josephine Baker.—The date of the dinner which is being arranged by various organizations and friends in honor of Dr. S. Josephine Baker has been changed and it will be held at the Commodore on April 25.

Dr. William S. Halsted of Johns Hopkins Uni-

versity was presented with a gold medal by the National Dental Association on April 1, in recognition of his work in neuroregional anesthesia. The Maryland State Dental Society was host at the dinner in honor of Dr. Halsted. Among the speakers was Dr. William H. Welch, who told of his association with Dr. Halsted in New York nearly forty years ago when he made the discovery for which he was now being honored.

Dr. Oscar M. Craven has been appointed Health Commissioner of Springfield, Ohio.

Dr. Joseph Rubsam has been elected president of the staff of St. Joseph's Hospital, Logansport, Ind.

Prof. William Duane of the Department of Physics of Harvard University has been awarded the John Scott medal and certificate, with premium of $800, by the Board of Directors of City Trusts of Philadelphia for his researches in radioactivity and *x*-rays. The award is made annually for scientific achievement in accordance with the terms of a bequest over a century ago by John Scott. Last year the winner was Mme. Curie.

Vacancies for Physicians in Indian Service.—The United States Civil Service Commission announces an open competitive examination for Junior Medical Officer in the Indian Service and in the position of surgeon in the Coast and Goedetic Survey, at salaries from $1,000 to $1,200 a year with maintenance, transportation, drugs, and equipment. Appointees whose services are satisfactory are allowed the increase granted by Congress of $20 a month. Applicants should apply at once for Form 1312, stating the title of the examination desired, to the Civil Service Commission at Washington, D. C., or to the Post Office or Custom House of any large city in the United States.

Positions for Occupational Therapists.—The New York State Civil Service Commission announces a written examination to fill six positions for chief occupational therapist in State and county institutions. Candidates must have had special training in occupational therapy and experience in the treatment of mental patients by occupational therapy. A vacancy is also announced for a director of occupational therapy at a salary of $3,500 to $4,000 with full maintenance while on duty at hospitals. Candidates must have had special training in occupational therapy for mental patients, experience in the training of occupational therapists, and experience in the organization and direction of occupational therapeutics. A total of at least five years' experience is required. Applications for examination for the former positions may not be accepted after April 19, and for the latter not after April 27. Application forms may be had by addressing the Civil Service Commission, Albany, N. Y.

Medical Society Elections.—THE PANHANDLE MEDICAL ASSOCIATION, at its annual meeting held at Amarillo, Tex., March 25, 1922, elected the following officers for the ensuing year: *President*, Dr. Winfred Wilson, Memphis; *First Vice-President*, Dr. H. L. Wilder, Clarendon; *Second Vice-President*, Dr. G. A. La Grand, Hereford; *Secretary*, Dr. J. J. Crume, Amarillo.

THE ASBURY PARK MEDICAL ASSOCIATION, at a meeting held March 25, 1922, elected the following officers for the ensuing year: *President*, Dr. Joseph Ackerman; *Vice-President*, Dr. Earl C. Wagner; *Treasurer*, Dr. James Fisher; *Secretary*, Dr. R. E. Watkins, Belmar; *Censors*, Drs. Charles Prout, C. M. Trippe, Asbury Park, and C. J. Massinger, Ocean Grove.

THE KANSAS CITY ACADEMY OF MEDICINE, at its thirty-second annual meeting held on March 31, 1922, elected the following officers for the ensuing year: *President*, Dr. George E. Bellows; *Vice-President*, Dr. Joseph Lichtenberg; *Secretary*, Dr. W. A. Myers; *Treasurer*, Dr. Joseph W. Kimberlin; *Censor*, Dr. Eugene P. Hamilton.

Public Health Clinics in Philadelphia.—The Department of Public Health has established at the Philadelphia General Hospital five clinics—genito-urinary, heart, prenatal, neuropsychiatric and radiological—to meet the need for the care and treatment of cases which do not require bed-side care, and for the purpose of preventing certain diseases by the early study and correction of physical defects. A Medical Social Service Department follows the cases closely.

The School of Medicine of the University of Alabama, which has recently been reorganized, has been recognized as a Class A school by the Council on Medical Education of the American Medical Association.

Charitable Bequests.—By the will of the late John E. Baird, formerly of Philadelphia, and who died recently at Honolulu, bequests are made as follows: Hospital for Diseases of the Chest of the Protestant Episcopal City Mission at Chestnut Hill and Kensington Hospital for Women, each $5000.

By the will of the late Henry Alexander Laughlin, of Philadelphia, formerly of Pittsburgh, the sum of $50,000 is bequeathed to the Passavant Hospital of Pittsburgh.

Obituary Notes.—Dr. GEORGE GORDON NEEDHAM died of heart disease and pneumonia at his home in New York on April 5, at the age of eighty years. He was graduated from Bellevue Hospital Medical College in 1865. He was a member of the American Academy of Medicine, the New York Academy of Medicine, and the County and State Medical Societies, and a Fellow of the American Medical Association.

Dr. JOSEPH SIMPSON WISE of Lincolnton, N. C., a graduate of the Kentucky School of Medicine, Louisville, in 1890, died on March 12, at the age of fifty-three years.

Dr. ERNEST WILLIAM DOWNTON of Starrucca, Pa., a graduate of the Medico-Chirurgical College, Philadelphia, in 1902, died of scarlet fever on March 12, at the age of forty-nine years.

Dr. JOHN F. BUTLER, for many years a practitioner of medicine in Wylie, Tex., died on March 11, at the age of eighty-five years.

Dr. ROBERT C. COTTINGHAM of San Francisco, a graduate of the University of Missouri School of Medicine, Columbia, in 1883, died suddenly on March 11, at the age of sixty-nine years.

Dr. LOUIS W. SCHULTZE of New York died of heart disease on March 24, at the age of sixty-five years. He was graduated from the College of Physicians and Surgeons in 1881. In 1888 he became

coroner of New York County, holding this position until 1894, when he was appointed medical inspector of the Department of Charities, in which capacity he served for eighteen years.

Dr. V. E. MAX KOEHLER, formerly of Cincinnati, Ohio, died at his home in New York on March 16, at the age of sixty-nine years. He received the degree of Doctor of Medicine from the University of Leipsic in 1875. He was for many years instructor in the Ohio Medical College, Cincinnati. He was a member of the American Medical Association.

Dr. JOHN ERASTUS WEAVER of Elmira, N. Y., a graduate of the College of Physicians and Surgeons, New York, in 1875, died on March 17 at the age of seventy-four years.

Dr. JOSEPH WALTER BANNAN of Providence, R. I., died in a local hospital following an operation, on March 16, at the age of thirty-two years. He was graduated from the Medico-Chirurgical College, Philadelphia, in 1915.

Dr. J. EUGENE JORDAN, a former member of the Seattle Board of Aldermen, died on March 21, at the age of seventy-seven years. He was a graduate of the Hahnemann Medical Institute, Chicago.

Obituary.

HENRY LOWNDES LYNAH, M.D.

NEW YORK.

Dr. HENRY LOWNDES LYNAH of this city died at Charleston, S. C., on March 31, at the age of forty-three years. He was graduated from the Medical College of South Carolina in 1900. He was a member of the American Laryngological, Rhinological and Otological Society of the New York Academy of Medicine, of the Medical Societies of the County and State of New York, and of the American Medical Association. He was laryngologist to Riverside and Willard Parker Hospitals; laryngologist and otologist to the Kingston Avenue Hospital; assistant surgeon to the New York Eye and Ear Infirmary; assistant laryngologist to the University and Bellevue Dispensary. Dr. Lynah was chairman of the Section on Laryngology of the Medical Society of the State of New York this year and also of the Section on Laryngology of the New York Academy of Medicine. He was a recognized authority on bronchoscopy and esophagoscopy.

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Correspondence.

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, March 24, 1922.

The Needs of the Hospitals.—One of the predominant questions of the medical world here to-day is the plight of the hospitals. While there has been almost endless discussion of the subject no really workable decision has been reached of solving the problem. After all, the situation is extremely difficult and no doubt a compromise is the only way out. An important conference of medical representatives of voluntary hospitals in England and Wales was held in London on March 22 last to discuss a report issued recently by the Council of the British Medical Association on the hospital policy. The debate dealt chiefly with the fact, that although hospitals are to continue their purely charitable work for indigent patients, they are concerned also at the present time with tariff patients, and the British Medical Association was successful in securing the approval of the conference in its endeavor to insure the payment of medical staffs for services which they now give gratuitously. It is proposed that it should be optional whether such remuneration should be personal or whether it should form a fund for medical research and education. The part of the report which refers to this matter reads as follows: The association recognizes a dual policy as regards the voluntary hospitals: (1) That the purely charitable side should be continued wherein the whole cost of the maintenance of indigent patients is met by the gratuitous contributions received by the hospital and on whose behalf the services of the honorary medical staffs are given gratuitously; (2) that other patients who are not indigent may be received for treatment at voluntary hospitals when adequate treatment cannot be obtained elsewhere and that for them payment should be received by the hospital either from the patients themselves or on their behalf from the authority or body referring them to the hospital, and that on account of their treatment some method of remuneration of the honorary medical staff should be arranged. The reception of the report was moved by Mr. Bishop Harman, chairman of the Hospitals Committee and the following amendment was moved by Mr. Batt, Bury St. Edmunds, and West Suffolk Hospital. That the report of the council of the British Medical Association, be not received in its present form; but that this conference maintains (1) That payment of the honorary medical staff in any form in incompatible with the maintenance of the voluntary system and must lead ultimately to State control; and that (2) that payment by or on behalf of patients, other than private patients, for a part or the whole of their maintenance does not necessitate any payment to the honorary staff. He pointed out that the essential principle upon which they had to decide was the question of payment or nonpayment of the staffs, and he was of the opinion that the conference should give a clear decision thereon before proceeding to any other business. He said that he and his colleagues felt that the voluntary system was intimately bound up with the honorary

position of the medical staff and that the payment of the staff in any shape or form was going to expedite the end of the voluntary system and they asked the conference to face that problem. The amendment was defeated by a large majority and the report was received. There was a great deal of discussion on the paragraph in the report in which the voluntary hospital was defined. Some delegates contended that any payment to the medical staffs was inconsistent with the word voluntary, on the other hand, it was urged by many members that the payment of an honorarium to the honorary staffs out of fees received from patients well able to pay for treatment did not destroy the voluntary principle. Eventually the paragraph recording the belief of the association "that the voluntary method of administration of the voluntary hospitals of the country is to the advantage of the public medical science, and the medical profession, and that it should be maintained and that the essence of the voluntary hospital system is the independent and voluntary management, and that this is not necessarily related to the conditions of service of the medical staff" was carried by a large majority. As said before, although the discussion on the question of the payment of medical staffs was hot and furious it was finally decided that that part of the report advocating their payment should stand. However, no ultimate decision regarding the management of hospitals here has been arrived at. It is difficult indeed to upset traditional methods, even if it were advisable to do so, at least, not all of them at once, and this seems to be the case with the British hospitals. The motto seems to be to move slowly, but this matters but little if the movement is progressive, sure and to the best advantage of all concerned.

Colored Vision.—A meeting of the Section of Ophthalmology of the Royal Society of Medicine held on March 10, a discussion on colored vision was opened by P. G. Doyne, F. R. C. S., who pointed out that colored vision was associated with a variety of conditions, physical, and pathological, the most generally familiar form being, perhaps, that following exposure to snow, or that which may appear to those who have had cataractous lenses removed. Mr. Work Dodd had described in Vol. 19 of the Transactions of the Ophthalmological Society, a state of green vision in a man the subject of tabes dorsalis, and in the next volume he presented records of thirteen cases of the condition: three of them had lead poisoning, three were myopic, one had detachment of retina, one had tabes, in three there was active choroiditis, two had migraine, and one had wound of the cornea with prolapse of iris. Mr. Treacher Collins had told Mr. Doyne that colored vision might be associated with (1) changes in the visual media of the eye; (2) after images; (3) might depend on the position in which light impinges on the eye; (4) pathological retinal and nerve irritation; (5) cortical disturbance; (6) functional. Mr. Doyne during the past few months had collected eleven cases of various forms of colored vision. In the discussion that followed Mr. M. S. Mayon described a case of colored which came to him for treatment, the subject was a taxicab driver, who dare not take his cab out at night as he saw approaching lights as a red wall, and could not discern whether lights were approaching or receding. Nothing wrong was found in the fundus, but probably there was present some arteriosclerosis. He was about 50 years of age. He became much better in four months and resumed work. Mr. Leslie Paton said tabetics seemed often to have had green vision, but no cases of red vision in subjects of this disease were on record. In connection with the amaurosis associated with cerebral tumors the temporary attacks of blindness were sometimes accompanied by definite color scotomata, now and then in the form of a golden meshwork. Color scotomata were also seen sometimes in patients with migraine. The president, Dr. James Taylor, said that some patients with optic atrophy saw a pale blue mist in times of twilight. Mr. Frank Juler referred to a case of a medical man who five months after a cataract operation had erythropsia and purple vision. The patient himself, who at one time was a professor of physiology, suggested that the phenomenon was due to a change induced in the reaction of the visual purple by the excess of blood which got in; that there might be some disturbance of the vitreous which acted chemically upon the retina. Mr. Affleck Greeves told of a case of a lady with central cataract, who was given weak atropine drops and who complained that when she went out of doors everything looked green, and when she returned to the house everything had a red coloration. Mr. W. I. Holmes Spicer referred to the blue vision of people just after an extraction of cataract had been done; also, people with retinal hemorrhages were able to see patches of blood in their retinae. Fuch's explanation of the purple vision after the dazzle of snow was that the glare exhausted the visual purple and this was followed by a rapid resecretion of the visual purple.

Jenny Lind Hospital for Children in Norwich.—This hospital, named after the celebrated Swedish singer, has an interesting history. In 1849 Jenny Lind gave two concerts in St. Andrew's Hall, Norwich, and expressed a wish that the proceeds should go toward the founding of a new charity of the poor of that city. The first building of this foundation was situated in the center of Norwich, but in 1900 was replaced by an up-to-date modern hospital erected on the outskirts of the city. The annual report for 1921 has just been published and it is stated therein that great progress has been made and a record established in every department. The committee expressed themselves as gratified by the large number of cases stated to be "cured," viz.: 75 per cent.; 7.5 per cent. were marked "relieved"; 8.5 per cent. discharged for special reasons or remained *in statu quo;* 5 per cent. died; and 4 per cent. remained in hospital at the end of the year.

OUR LETTER FROM SWITZERLAND.

(From Our Own Correspondent.)

GENEVA, April 1, 1922.

Regulating the Sale of Narcotics.—On January 23, 1912, an agreement was concluded at the Hague which regulated the sale of opium and its deriva-

tives and cocaine, an agreement signed by Switzerland, but which has not as yet been ratified. This agreement had especially in view the restraint of the illegal sale of narcotics and for this reason is of utmost importance to Switzerland just at present where the abuse of products such as morphine and cocaine begins to assume disquieting proportions. Hence, the question of ratification of the Hague convention is now the order of the day. But this agreement must be carefully studied and first of all it is essential to ascertain what are the legitimate needs of Switzerland as regards the products envisaged by the Convention. Therefore, in order to ascertain approximately this point, The Federal Service of Public Hygiene has addressed a circular to pharmacists, asking what amounts of each of these products each pharmacist annually employs, viz., opium, morphine, heroine, dionine and cocaine (ecgonine). The replies are to be regarded as strictly confidential.

Kala Azar and Bedbugs.—As the result of prolonged investigation into the causes of kala azar (Assam fever), Mrs. Adie has discovered a parasite in the salivary glands of the bedbug. The parasite is probably a stage of the Leishman-Donovan body which causes kala azar. The idea that this disease is carried by bedbugs was put forward some considerable time ago, particularly by Sir Leonard Rogers, the distinguished ex-medical officer of Calcutta, who has done so much pioneer work in connection with kala azar. Mrs. Adie is the widow of a physician, who, it appears, was greatly interested in the subject and since her husband's demise she has continued the research work herself at Delhi. Kala azar was formerly one of the most lethal diseases of India and entire villages were frequently ravaged by it. However, Rogers' work showed that if the village was removed from one site to another the disease was frequently much reduced in extent. Mrs. Adie believes that her parasite represents a phase in the life history of the Leishman-Donovan body and if she is correct, then the chain of evidence is complete and the bedbug stands convicted. So enormously numerous is this parasite in India that its destruction is said to lie outside of the range of possible measures, but Rogers believes that the best method of prevention is the use of antimony. Provided there are no infected persons for the bugs to bite, there can be no spread of the disease.

A Culture Medium for Rickettsia.—It is now believed that Kuczynski has finally succeeded in growing *Rickettsia prowazeki*. This observer laid stress on the fact that this Rickettsia seems to be an obligatory intracellular organism, as well when it lives in the house as in its cycle in man. Its mode of life is thus exclusively anaerobic and in a medium composed of elements different from those of the ordinary blood plasma. The suitable culture medium which he finally devised was one in which the blood plasma is diluted and modified so as to resemble in its composition the human tissue lymph.

To avoid accumulation of metabolic products that he considers to be very harmful to the organism in question he used a method of Metchnikoff, which consists of growing the culture in collodium bags implanted in the abdominal cavity of guinea pigs. By this method in repeated experiments he cultivated the Rickettsia from the brain tissue of infected guinea pigs; the organism grew luxuriously and, he claims, in pure culture after recultivation. Guinea-pigs inoculated with these Rickettsia cultures developed the well-known types of pyrexia characteristic of experimental typhus, and were immune from further inoculation with ordinary typhus virus. If these findings are confirmed, then, as Kuczynski himself says, by obtaining the organism in pure culture from infected guinea pigs and reproducing the disease with this culture, the etiological chain for typhus fever will be closed. It is possible that the defenders of the theory of filtrable virus will consider the matter not yet settled, since the invisible virus may have grown at the same time in the supposedly pure culture of Rickettsia. But a similar objection might also be raised against recognized pathogenic organisms of many other diseases.

Shock.—Prof. Arthus of Lausanne, in his book: *De l'Anaphylaxie à l'Immunité*, recently published, says that "it is possible to verify that the production of certain precipitates in the blood does not give rise to accidents having the character of seroanaphylactic accidents." As a proof of this he shows the innocuousness of intravenous injection of an emulsion of white beeswax, and nevertheless, this emulsion precipitates in presence of blood serum.

This fact might at first appear to invalidate the physical theory of shock, but when examined more closely it will be found that Arthus resorted only to intravenous injections. Now, Lumière and Couturier, of Lyons, have shown that many insoluble substances do not produce shock when injected intravenously or into the right heart, but on the contrary, invariably provoke anaphylactoid accidents when injected into the left heart. Ligature of the carotids completely prevents the occurrence of these accidents while, on the contrary, an injection into the carotids produces effects of maximum intensity.

All the investigations of Lumière and Couturier tend to prove that shock does not ensue unless the precipitates or floccular substances suddenly reach the vessels of the nervous centers. The passage of these precipitates into the pulmonary or peripheral capillary circulation arrests or delays their mechanical action on the endothelium of these vessels and this is exactly what takes place when an emulsion of wax is injected into the marginal vein of a rabbit's ear. The relatively large globular wax elements which form by the mixture of the emulsion with the serum, are retained in the capillaries and cannot exercise a sudden central action which is essential for the production of an anaphylactoid crisis.

In order to confirm these views, Lumière and Couturier repeated the incomplete experiments of Arthus, employing an emulsion of white wax according to the latter's technique. An injection of 1 c.c. into the right heart of guinea pigs gave rise to no shock, but when injected into the left heart a characteristic crisis ensued, with all symptoms of shock. According to the dose the accidents are slight or end in death. After ligature of both carotids the intracardiac injections remain with-

out effect. If five centigrams of sodium hyposulphite are dissolved in 1 c.c. of the wax emulsion the mixture becomes inactive, although the addition of this salt has a pronounced tendency to determine the reunion and precipitation of the dispersed wax elements. A non-lethal dose of wax emulsion injected into the left heart vaccinates animals for about twenty-four hours against barium shock or even against true anaphylactic shock in sensibilized guinea pigs. Inversely, animals having survived a paralethal dose of barium sulphate become insensible for twenty-four hours to an intracardiac injection of Arthus' emulsion. The latter's experiments, completed by those of Lumière and Couturier, far from invalidating the conceptions previously put forth by the latter two observers confirm, on the contrary, their views and constitute another argument in favor of the physical theory of shock.

Progress of Medical Science.

Boston Medical and Surgical Journal.

March 30, 1922, clxxxviii, 13.

1. The Theory of Psychoanalysis. John F. W. Meagher.
2. Achylia Gastrica. Louis Fischbein.
3. The Extraction of Non-Magnetic Foreign Bodies from the Anterior Chamber of the Eye. William F. O'Reilly.

2. Achylia Gastrica.—Louis Fischbein, in a careful study of thirty cases of primary *achylia*, found gastric hypermotility in every instance. After considerable straining and retching on the part of the patient, not more than 10 to 15 c.c. of gastric contents could be obtained, consisting of a thick, practically neutral liquid with an admixture of mucus from the throat, in which were suspended a few poorly digested crumbs of bread used in the test meal. Achylia is not only a disturbance in secretion, but a disturbance in motility as well. Primary achylia, in the sense in which the essayist uses the term, is found almost exclusively in neurotics. It occurs more often in men than in women, and is more common in young adults and in the middle-aged than in the elderly. Neither is achylia due to primary cell atrophy in consequence of some local infection, as maintained by Bassler, as his observations were made upon pieces of gastric mucous membrane obtained in vivo, which are not indication of any pathological changes in the stomach. Besides, primary cell atrophy, even if it does exist, need not involve all the secreting cells, and thus give rise to achylia. Achylia is, like hyperacidity and hypersecretion, either a symptom or a part and parcel of a general neurosis. Practically all the patients in this series were pronounced neurotics, the majority of them being in the prime of life and in good physical condition, with no history of antecedent infection, intoxication or other illness, to which their gastric disturbances could be attributed. In some the local as well as the general symptoms disappeared under treatment; in others, the local symptoms disappeared, while the general symptoms persisted. Some, after getting rid of their digestive disturbances, complained of headache, dizziness, or a feeling of faintness, so that there could be no doubt as to the nervous nature of the affection. Further, experiments have shown that emotional states are followed by actual physiological and chemical changes; but why these changes should, in some cases, give rise to a hypersecretion or hyperacidity, and in others to anachlorhydria or achylia, is not known and can only be surmised by analogy with nervous disturbances elsewhere. The treatment of achylia is general, dietetic and medicinal. The general treatment comprises a variety of methods, of which psychotherapy is the most important. A mixed diet is employed from which those foods alone are excluded which, by their chemical or mechanical action, might cause irritation and distention of the stomach. Dilute hydrochloric acid, which has been highly recommended by almost all authorities as the drug *par excellence* in achylia, has been found, in the writer's experience, to be not only of no benefit whatever, but, in some cases, even to aggravate the dyspeptic symptoms; neither has he seen any benefit from nux vomica, tr. cinchonæ comp., and the other so-called stomachics. On the other hand, drugs like the bromides, chloral hydrate, extract of valerian, and tr. opii, have been found of decided benefit.

3. The Extraction of Non-Magnetic Foreign Bodies from the Anterior Chamber of the Eye.—William F. O'Reilly reminds us that text-books advise the removal of foreign bodies in the anterior chamber and iris by the use of forceps inserted through a keratotomy wound lying close down to the iriditic angle, eliminating a posterior lip. To a keratotomy no exception can be taken, but to the forceps, no matter how ingeniously constructed or deftly manipulated, the exceptions are obvious. To overcome the embarrassments and complications that may arise in the use of forceps the following method is recommended: A two-inch strand of horse hair is looped and the free ends inserted into an ordinary broach holder. The loop of hair is sized and moulded and bent to suit the individual case. The usual low non-posterior lip keratotomy is made nearest the foreign body. The incision should be small, just enabling the loop to enter the chamber and pass over the foreign body. The distal end of the loop is depressed and the foreign body drawn toward the corneal opening. Several engagements of the body by the loop may be necessary before the body reaches the chamber angle. This instrument may be made and remade to suit the case and the conditions that arise in the extraction of the foreign body. The procedure is carried out under cocaine anesthesia, and the usual postoperative measures are used.

Journal of the American Medical Association.

April 1, 1922, lxxviii, 13.

1. The Technique of Prostatectomy and Its Relation to Mortality: Report of 165 Consecutive Cases of Perineal Prostatectomy Without a Death. Hugh Hampton Young.
2. Keratodermia Blenorrhagica. Edward C. Gager.
3. "Ideal Cholecystotomy": A Valuable Procedure in Certain Cases of Cholelithiasis. A. Murat Willis.
4. Dermatitis Herpetiformis in Children: Report of Two Cases. Edward A. Oliver and Charles J. Eldridge.
5. Potential Cardiac Disease and Prevention of Organic Heart Disease in Children: A Study of Sixty-Five Cases under Continuous Observation for an Average Period of Four and One-half Years. William St. Lawrence.
6. Carcinoma of the Spleen: Its Microscopic Frequency: A Possible Etiologic Factor. S. W. Sappington.
7. Treatment and Prevention of Pellagra by a Daily Supplemental Meal. G. A. Wheeler.
8. Presystolic Murmurs in Rapid Hearts Simulating Murmur of Mitral Stenosis, with Report of Necropsies. Ernest E. Irons and Alpheus F. Jennings.
9. Sequels of Acute Epidemic Encephalitis: A Study of Ninety-Two Cases from One to Three Years After Recovery. Morris Grossman.
10. A review of the Clinical Significance of the Wassermann Reaction. Albert Strickler.

1. The Technique of Prostatectomy and Its Relation to Mortality: Report of 165 Consecutive Cases of Perineal Prostatectomy Without a Death.—Hugh Hampton Young writes this article for the purpose of showing that by means of the perineal route just as radical and satisfactory removal of the entire adenomatous prostate in one piece can be accomplished through the perineum as by the suprapubic route, with, however, complete conservation of important anatomic structures—vesical sphincter, ejaculatory ducts, etc. By means of the great natural advantages of the lower operation, namely, ability to do an open operation through visual inspection, to arrest hemorrhage and to apply sufficient packing for complete hemostasis, and with dependent drainage, and avoidance of sepsis, and the inconvenience of distention of the bowels which so frequently follow suprapubic operation, a remakably low mortality can be secured and prostatectomy brought within the ranks of those modern major procedures which are practically free from danger. In performing the operation to which Young gives preference, the capsule and urethra are opened by an incision beginning along the left side of the tractor (introduced through a median urethrotomy wound), where it enters the prostatic urethra, and from that point continues backward and slightly outward near the pos-

terior limit of the prostate. The whole prostatic urethra is thus widely opened, and investigation will show the verumontanum well preserved along the floor of the urethra to the right. Incision is then made along the mucous membrane covering the inner surface of the right lateral lobe, and enucleation of the lateral lobes carried out by means of the blunt dissector and the index finger. The mucous membrane covering the middle lobe is then divided transversely, the ejaculatory ducts and verumontanum being pushed backward and guarded by the index finger, which is inserted along the floor of the urethra until it reaches the middle lobe, the incision then being made with the scalpel on the finger nail through the mucous membrane covering the median portion of the prostate, after which the finger is pushed backward beneath the middle lobe, thus freeing it from the proximity of the ejaculatory ducts posteriorly. Enucleation of the lateral and median lobes is then completed, until the entire adenomatous prostate is drawn forward and gradually separated from its attachment to the vesical and urethral mucous membrane, which usually strips away without difficulty, leaving the interior surfaces of the lateral and median portions of the prostate completely free from mucous membrane.

5. Potential Cardiac Disease and Prevention of Organic Heart Disease in Children: A Study of Sixty-five Consecutive Cases Under Continuous Observation for an Average Period of Four and One-Half Years.—William St. Lawrence states that of these sixty-five potential cardiacs forty-nine, or 75 per cent., remained free from evidence of cardiac disease during the time they were under observation. Of twenty-five patients with acute rheumatic fever in the series, none contracted a lesion in the heart. Of nine patients with myositis, bone and joint pains (growing pains) and sore throat, none contracted a lesion in the heart. Sixteen patients (25 per cent.) contracted a cardiac lesion while under observation. In every case in which a cardiac lesion developed, the clinical picture was dominated by chorea in severe form. No patient contracted a lesion in the absence of this manifestation. Of forty-one patients with chorea in the series sixteen (39 per cent.) contracted a lesion in the heart. Measures of value in preventing disease of the heart are of the greatest benefit when directed against acute rheumatic fever and myositis, bone and joint pains (growing pains) and sore throat. Such measures have little if any value when directed against chorea. In untreated potential cases, acute rheumatic fever is the most important factor concerning disease in the heart. In potential cases under management, chorea is the most important factor concerning disease in the heart. With the exception of mitral stenosis, cardiac lesions practically always occur during the active phase of a rheumatic manifestation or a period of pyrexia. In the absence of an active phase, the physical signs in the heart remained unchanged. Evidence of mitral stenosis may not appear for a year or more after the cessation of the rheumatic manifestations. It is therefore impossible to state at the conclusion of an attack of acute rheumatic fever or chorea that the heart was unaffected by these conditions. Heart rate may have a marked effect on the physical signs of mitral stenosis, as shown by a graphic record.

6. Carcinoma of the Spleen: Its Microscopic Frequency: A Possible Etiologic Factor.—S. W. Sappington reports a case of carcinoma of the spleen, secondary to cancer of the breast, and part of a general microscopic carcinomatosis. The rarity of cancer of the spleen is genuine, but there is evidence to show that there is actually no local immunity, and that microscopical examination may add considerably to the number of reported cases. In this case massage was probably an etiological factor, an evidence of the danger of tumor manipulation.

9. Sequels of Acute Epidemic Encephalitis: A Study of Ninety-two Cases from One to Three Years After Recovery.—Morris Grossman states that only ten of the ninety-two patients examined in this series were free from symptoms and showed no residual signs when observed from one to three years after the acute illness. Fourteen others had recovered, within this time, sufficiently to allow them to return to their work. These patients, however, still showed residual signs of their previous illness and complained of various forms of psychic disturbances, such as insomnia, irritability, poor memory, and fear neuroses. Sixty-two patients showed a serious, more or less progressive involvement of the central nervous system which was evidenced by disturbances in the motor psychic or autonomic functions. Of these sixty-two patients, forty-two showed a clinical syndrome which closely resembled that seen in paralysis agitans. On account of the rapid development of the syndrome, their emotional responses were more active than those of the average patient with paralysis agitans. They smiled more readily and seemed to overcome their facial immobility more completely and more easily. Their mental reactions were likewise more prompt. Almost 70 per cent. of these patients were below thirty years of age. A strikingly large number of them also showed pupillary changes and residual signs pointing to cranial nerve involvement; this is an unusual finding in true paralysis agitans. Another outstanding feature that was noted in the re-examination of these patients was the strikingly large number who showed increase in the activity of the abdominal reflexes.

The Lancet.

March 11, 1922, ccii, 5141.

1. Lettsomian Lectures on Amebic Liver Abscess: Its Pathology, Prevention and Cure. I. Etiology and Pathology. Leonard Rogers.
2. The Advantages of the Metric System for Prescribing. W. C. Sillar.
3. The Surgical Treatment of Exophthalmic Goiter. W. H. C. Romanis.
4. The Etiology of Gout. Llewellyn Jones Llewellyn.
5. Estimation of Physical Fitness in Terms of the Respiratory Movements of the Several Regions of the Chest. Alfred A. Mumford.
6. The "Cold Plague" of the War of 1812-14. William Renwick Riddell.

3. The Surgical Treatment of Exophthalmic Goiter.—W. H. C. Romanis bases this paper on a series of 25 cases of the diseases, of all types of severity, upon which he has operated, many with pulse rates of over 180 and some with auricular fibrillation and other gross disorganizations of the heart. Only six, or 24 per cent., have succumbed. Nearly all the operations were performed under local anesthesia and twilight sleep, with a few exceptions in which a little open ether was given. The writer feels that the performance of the operation under local anesthesia has largely contributed to the low mortality. Stress is laid on the advantage of giving preliminary injections of morphine and hyoscine. It is strongly urged that removal of one thyroid lobe (hemithyroidectomy) is hardly ever sufficient to completely cure a case of Graves' disease, and that if a permanent cure is aimed at it will be necessary to remove one lobe, the isthmus, and a sixth, a third, or even a half of the opposite lobe, according to circumstances. It is usually feasible to do this at one operation, but occasionally—where the gland is abnormally adherent or where the patient is desperately ill—it has to be done in two separate stages, one lobe being removed at the first operation, and later a portion of the other lobe is excised. Following the operation a long stay in bed and four months of very easy life are essential parts of the treatment. As a rule after three or four months the writer finds that patients who have had an adequate amount of thyroid gland tissue removed feel well, eat well, sleep well, and can do their day's work, though it is not advisable for them to take up their normal life as soon as this. The gain in weight following operation is nearly always marked. In this series only two or three patients after operation have shown a slight fall in the basal metabolism below normal, to amounts varying between —5 and —10 per cent., and these patients have not up to the present time shown any signs clinically of hypothyroidism.

4. The Etiology of Gout.—Llewellyn Jones Llewellyn holds that gout is purely hereditary. A tendency to cellular sensitization is the pathological groundwork of the disorder—viz., latent gout. The gout is evoked by the corresponding protein or antigen, whether animal, vegetable, bacterial or other. It exerts its effect through the medium of vascular endothelial poisoning with tonus of unstriped muscle, especially the bronchioles. The same phenomenon finds its clinical ex-

pression in the regular and so-called irregular manifestations of gout. May not skin protein tests if applied to the gouty yield as rich a harvest of information as has already been gleaned in asthma?

5. Estimation of Physical Fitness in Terms of the Respiratory Movements of the Several Regions of the Chest.—Alfred A. Mumford describes repiratory tests suitable for testing the fitness of school children. These tests are arranged in three categories: (1) Tests originating in the measurement of respiratory range or total volume of air expired in relation to the body surface. (2) Tests based on the measurement of the force of inspiration and expiration—that is measurement of the force of those voluntary and involuntary muscles which are impressed into the service of vigorous respiratory action. The movements may be momentary or sustained, and are measured by an ordinary U-tube manometer, the first being calculated by the height and the second by the length of time during which the breath can be held against a slight resistance. This power grows rapidly during adolescence. This is a useful test of fatigue and overwork when once the optimum standard of a boy has been fixed. (3) Tests based on the completeness with which the several regions of the thorax display their functional activity. This test depends on clinical examination and measurement of the movements of special regions. The regional method requires special procedures and special apparatus. By these methods it has been shown that the mammary and midsternal regions move most freely in subjects with well developed pectoral muscles—singers, swimmers, long distance runners and gymnasts. The movements of the submammary regions, and still more the postero-lateral regions, covering the tenth to twelfth ribs, afford the most complete indication of innate bodily vigor. It is rare to find great persistence and continuousness in effort among boys, when the movements of this region are limited. There may be considerable development of strength in the shoulders and arms with restricted lower costal breathing, owing to tonic contraction of abdominal muscles, but any blow given by the arm will be a sudden effort rather than a sustained one. Movement is greatly restricted in children with hollow backs or weak spinal muscles.

British Medical Journal.

March 11, 1922, 11, 3193.

1. The Robert Campbell Memorial Oration on the Surgery of the Blood. Thomas Sinclair.
2. The Treatment of Insomnia. Robert Dawson Rudolf.
3. Rickets: A Theory of the Metabolic Disturbances and of Its Association with Tetany. D. Nöel Paton.
4. Amputations at the Shoulder and at the Hip. H. Littlewood.
5. A Post-Graduate Lecture on Clinical Aspects of Abdominal Tuberculosis. John Morley.
6. Observations on the Resting Metabolism of Children and Adults in Switzerland. Leonard Hill and Argyll Campbell.
7. Pertussis with a Leucocytosis of 176,000. Geoffrey Bourne and J. M. Scott.

3. Rickets: A Theory of the Metabolic Disturbances and of Its Association with Tetany.—D. Nöel Paton observes that recent work is pointing more and more to the primary involvement of phosphorus rather than calcium in the perverted metabolism of rickets. He reviews evidence which seems to point to: (1) The independent carriage of at least part of the calcium and of the phosphorus in the blood to the growing bone and and to their combination in situ. (2) A limitation in the supply of phosphorus or phosphoric acid, or a supply in unsuitable form as a primary disturbance in the metabolism of rickets. (3) The important part played by phospholipin, especially of lecithin, in the metabolism of phosphorus in the body on its way to the formation of calcium phosphate in the bone. The possibility is suggested that some modification in the normal metabolism of lecithin may be the essential disturbance in rickets. This faulty metabolism may in some cases be accompanied by an increased conversion of cholin into guanidin compounds, thus explaining the association of tetanus with rickets, since Paton, Findlay, and others have shown that methyl guanidin produces the same symptoms as those of tetania parathyreopriva. The fate of methyl guanidin in the body is not fully known, but probably it is not excreted as such. This suggests that it may first be linked to acetic acid to form creatine, which is an inert substance, and that thus the active guanidin may be detoxicated.

5. Clinical Aspects of Abdominal Tuberculosis.—John Morley sums up the indications for operation in the various types of abdominal tuberculosis, as follows: Pain, when it occurs in recurrent, well-defined, colicky attacks, especially if they return with periodicity and sharp intensity, signifies a mechanical interference with intestinal peristalsis, and this can only be relieved by operative measures. Glandular masses in the mesentery, if not too extensive, and if they do not yield rapidly to constitutional treatment, should be excised, and this is particularly urgent when they are associated with colicky attacks of pain. Palpable masses in the ileocecal region, associated with signs of chronic intestinal obstruction, are an emphatic indication for laparotomy and resection of the tuberculous ileocecal region should such be found. The ascitic form of tuberculous peritonitis is essentially a disease for surgical treatment. The operation is free from danger, and its beneficial results are usually dramatic. The utmost care in medical and constitutional treatment is of great importance in the cure, but operation is almost equally essential. In the plastic type of tuberculous peritonitis, if the trouble does not yield to the ordinary medical measures, operation may be undertaken with a fair degree of safety, provided that no extensive attempt is made to separate adhesions; and the author says that there is some ground for hoping that even apparently desperate cases may make a complete recovery.

7. Pertussis with a Leucocytosis of 176,000.—Geoffrey Bourne and J. M. Scott report this case because no other white blood count of such a high figure has come to their notice, excluding those found in leucemia. The patient was a female child of 1 year 9 months, who had been subject to fits of coughing of gradually increasing severity and duration for twelve days before coming under observation. The first blood counts, taken on the sixteenth day of the disease, showed 176,000 white cells per cubic millimeter, of which 116,000 were lymphocytes. From this time the total leucocyte count fell and with it the lymphocyte count. The case seems to show that the leucocytosis is high at the end of the paroxysmal stage and that a fall in the count is of good prognostic significance since with the fall in the leucocyte count the clinical improvement was progressive. It is also of interest that the excessive lymphocytosis—presumable a manifestation of active pertussis—was present sixteen days after the onset of the disease.

Hygiea.

February 15, 1922, lxxxiv, 3.

Case of Congenital Defect of Radius and Ulna.—This case, reported by Sven Johansson, is of marked interest because probably the first of its kind to go on record. The patient when first seen was a boy aged one year. The humerus at the juncture of the third and fourth quarters was bent at a right angle, and was without an epiphysis. The skeleton of the hand is normally developed. A congenital cutaneous scar at the site of the angulation points to the action of intrauterine pressure in causing the defect. An osteotomy performed on the humerus has given the patient an enhanced use of the limb.

Os Vesalianum Pedis.—The same author also reports a find which he regards as a Vesalian bone in the foot. It occurred in the distal row of tarsal bones between metatarsal V and the os cuboides on the left side. Its configuration was cuboidal, and it measured 22 by 15 cm. There was also a small os peroneum and the anomalies were bilateral, though smaller on the right foot. Clinically the supernumerary bone was seated just back of the distal end of the fifth metatarsal, from which situation it was exsected. It is not to be confused with an epiphysis of the tuberosity of the metatarsal. Vesalius himself included this bone among the supernumerary structures. Many anatomists have insisted that this bone is usually found fused with the metatarsal, constituting an epiphysis of that bone, but the author of this article says that, as a result of the radiogram and operation, he is able to prove that his find is not of the same type.

Book Reviews.

THE TREATMENT OF ORDINARY DISEASES. Notes from the Record Book of an Old Practitioner. By BEVERLEY ROBINSON, M.D. (Paris), Emeritus Clinical Professor of Medicine at University and Bellevue Hospital Medical College, New York; Consulting Physician to City and St. Luke's Hospitals; Honorary Member Association of American Physicians. New York: American Medical Publishing Company, 1921.

IT is a great service to his profession that Dr. Robinson has rendered in jotting down these therapeutic notes for the benefit of the younger generation of physicians. In the modern running after the science of medicine, the art of curing has been rather neglected, and we sadly need the reminder that this book gives us that, while it is essential to find out the cause of disease, if possible, it is malpractice to abstain from all therapeutic effort until such cause can be discovered. Thousands of old-fashioned country practitioners cured —yes, *cured*, pneumonia (in spite of Osler's dictum that it is a self-limited disease and cannot be cured)— long before Types I, II, III, and IV, and the other nondescript germs were seen and classified; quinine cured malaria long before the plasmodium appeared to view; the progress of syphilis was arrested by mercury before Schaudinn's day and before the manufacture of silly salvarsan (or is it silver salvarsan?). In this little book Dr. Robinson, a revered practitioner of the old school, perhaps a little bit too scornful of the modern methods—for with all their shortcomings the laboratories, when kept in their proper place, are useful—tells how he treated pneumonia, common colds, typhoid fever, whooping cough, malaria, syphilis, rheumatism, gout, headache, tuberculosis, anemia, and a host of the other ills which so often afflict erring humanity. One need not follow his methods to the letter, for many of the new things are really most useful, but the reader will glean from these pages many valuable suggestions that will help him enormously in his mission of healing.

PRACTICAL ORGANOTHERAPY. The Internal Secretions in General Practice. By HENRY R. HARROWER, M.D., F.R.S.M. (Lond.). Third Edition. Glendale, Calif.: The Harrower Laboratory, 1922.

THERE is a great deal of valuable information regarding the morbid states dependent upon dysfunction of the endocrine glands in this well written book—so much, indeed, that it is well worth the while of every physician who would keep up to the times to get the book and read it through. And this despite the caution which leads one to look with doubt upon the merchant's praise of his own wares. The author of this book is frankly a manufacturer of endocrine products and his pages are dotted with references to, and recommendations to use, the various Harrower products. But no educated physician with a brain of sufficient dimension to enable him to treat disease ever uses ready made preparations except in the individual instances where he finds the combination suitable. In other cases he writes his own prescription and trusts to the pharmacist to fill it correctly—which, to his credit be it said, the pharmacist usually does. In the same way the reader of Dr. Harrower's book must exercise his right of discrimination—get what knowledge he can (and he can get a good deal) from these pages and then prescribe as he thinks best, using whatever make of gland extracts or nucleoproteins he may prefer, or using none, giving gland-stimulating drugs in place of the gland substance or extract. If a man is so wedded to the use of ready made preparations that he has forgotten how to write a prescription, he is unfit to practise medicine and will waste his time reading this book. His job is waiting for him in the coal mine or the stoke hole of a steamship.

THE LIFE OF JACOB HENLE. By VICTOR ROBINSON, M.D. Price $3.00. Medical Life Company. New York. 1921.

ANY addition to the literature of historical medicine is welcome if it be well and carefully done. If it be biography and the author has a true enthusiasm for his subject then the result is all the more welcome for the pages show forth not a dry compilation of some long dead scientist, but a living picture of a man who worked in medicine in the earlier days of our profession. Henle occupied a position of importance in the scientific world in the nineteenth century, but little has been known about the man because of the paucity of writings on the subject in the English language. Robinson has spent much time on his subject and is filled with enthusiasm for his hero. The book is not large and is interesting reading. It gives us not only a vivid picture of Henle himself, but a fair idea of general conditions of the time. If any should object that the importance of the subject of the sketch has been overemphasized one can say that overemphasis is preferable to omission of such work, but that we are not sure but that the author has not established good reason for his enthusiasm.

THE ORGANS OF INTERNAL SECRETION, THEIR DISEASES AND THERAPEUTIC APPLICATION. A book for General Practitioners. By Ivo GEIKIE COBB, M.D., M.R.C.S. Neurologist, Ministry of Pensions; Late Assistant to Out-Patient Physician, the Middlesex Hospital. Temporary Captain, R.A.M.C.; Neurologist, Brinnington Section, Second Western General Hospital. Third Edition. Price $3.50. New York: William Wood & Co., 1921.

THE scope of this work is explained on the title page. It is intended for the general practitioner, and it approaches the study of the internal secretions from the viewpoint of their diseases and therapeutic applications. Hence detailed studies of the anatomy and histology of these structures, and elaborate accounts of laboratory research are not to be found here. In place of these features the author lays before hs readers the important points which the endocrine glands play in health, how they are affected by disease, and the conditions in which they may be used as therapeutic agents. The fact that a third edition is called for within a few years of its appearance is evidence that the book is of practical use. This new edition contains two or three new chapters, and much revision of the older material. The bibliography is of value, and will doubtless be utilized by many readers of this volume who will be desirous of enlarging their knowledge of the endocrine glands. In each of the three editions there has been a reference to Beebe's book on the Ductless Glands; but we have been unable to find the book in the medical libraries.

ACUTE EPIDEMIC ENCEPHALITIS (Lethargic Encephalitis). An Investigation by the Association for Research in Nervous and Mental Diseases. Report of the papers and discussions at the meeting of the Association; New York City, December 28th and 29th, 1920. Price, $2.50. New York: Paul B. Hoeber, 1921.

IN 1920 the Association for Research in Nervous and Mental Diseases was formed to meet once a year and hold a symposium on some appropriate subject. Epidemic encephalitis was chosen for the first meeting and this book represents the result. Care has been taken to avoid duplication by omitting the overlapping parts of papers and discussions. An interesting feature is the verbatim report of the written questions submitted to each speaker, with his replies. The history of the disease, its nature, general and special symptomatology, differential diagnosis, and pathology are discussed at considerable length. The latest reports are given of laboratory workers who have arrived at the discovery of a minute, filtrable organism, which is probably the cause, although the association, with commendable conservatism, refuses to endorse this, for the present, anyway. At the meeting itself there was considerable discussion of the treatment, but for some reason this is not embodied in the present volume. Although over a year has elapsed since the association met, this book represents pretty accurately the present state of our knowledge about epidemic encephalitis. The somewhat bewildering impression one gets from reading the reports of these investigators is not due to any lack of clinical acumen or energy of research, but rather to the bewildering multiplicity of symptoms in this disease, the obscure epidemiology, the lack of prognostic criteria, and the absence of effective therapy. After considering each phase of the subject the association as a whole has summarized its conclusions. If it has leaned to conservatism in so doing, this is perhaps the safest course in a disease so new to modern science as this one

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON PEDIATRICS.

Stated Meeting, Held March 9, 1922.

DR. MARSHALL PEASE, JR., IN THE CHAIR.

Reeducation Treatment of Confirmed Stammerers.—Dr. L. PIERCE CLARK. (See page 609.)

Dr. SMITH ELY JELLIFFE stated that in a moment of weakness he had acquiesced in Dr. Clark's request to discuss this paper. According to the Chairman he had five minutes for the discussion. It was therefore with temerity that he undertook it. To try to discuss the problem of influencing the expressive side of a personality in five minutes did not amount to anything; at the same time he would begin and try to say something about what he had found was wrong with some stutterers. Personally, he did not enjoy treating stutterers, and nearly always sent them to someone else, but he was very much interested in putting his finger upon certain fundamental defects in the personality make-up of stammerers. He was interested in the character defect which formed the basis of this disorder. In his attempts at an analysis of the mmm, ttt, sss, or other types of stutterers he thought the particular sound difficulties meant something often quite definite. To convey just what he meant Dr. Jelliffe drew a circular diagram and said one could conceive of the fetus, which in nine months had gone through the evolution of one hundred million years. This might be represented as the center of an enlarging circle which he divided into segments each representing different organ strivings of the individual. At birth these segments must come into harmonious relation with each other. The first segment in the circle he indicated as the respiratory system. The first cry started the processes of life on three levels, in the terms of Hughlings Jackson. The first was a biochemical requirement; the need for oxygen satisfaction, the second was physiological respiration, and finally there was a third, the cry which was the symbol. In so far as the demand for oxygen was concerned in the new born it was met by a cry. Finding that the cry granted the satisfaction of the oxygen craving, the infant endeavored to meet other cravings by the same symbol. He cried when he felt something. It might be noted that 100 per cent. of the infant's energy went into the first cry. A second segment in the circle represented the need of the infant for food. Having learned that a cry led to the satisfaction of his first demands, he cried for food. Here he first learned that he could not "holler" and "swallow" at the same time. That was the first fifty-fifty struggle the child met with in life. The result was a *displacement* of interest in order to get from the cry to the swallowing. The mmm type of stutterers had never actually learned the first lesson that they could not cry and swallow at the same time. They "want their cake and eat it too." It was very difficult to cure the mmm type of stutterers. The struggle started so far back in infancy. In his study of neurotic conditions he had found that the amount of compulsion that lay back of the symptoms was in direct proportion to the age at which the fixation had occurred. If it began at an early age it had almost the whole force of the personality behind it. Continuing his chart, Dr. Jelliffe spoke of the next necessary type of craving that the child had to displace his energy. One hundred per cent. of his energy now went to the bladder. The infant found that if he wanted to urinate, he had to stop, practically, at least, crying and swallowing. Another necessary early satisfaction was the function of defecation. These four different functions he had found distinctly valuable in classifying different types of stutterers. With the mmm type of stutterers the inability to cry and swallow at the same time was a manifest mechanism; in the sss and ttt type urinary fixations were playing a preponderant rôle. The bbb type, those who blew or burst their words out, were those in whom fecal phantasies were largely responsible. In other words, certain amounts of displacement of initial craving satisfactions were coming out in the defect shown in stuttering. In the group of stutterers in whom the disorder occurred at their early level fixations it took a long time to get well; they belonged to the compulsive or even the epileptiform groups. They were occurring in the organ erotic phase of psychological development. If the speech defect were later, at from six to ten years of age, the narcissic or exhibitionistic level, which level in general represented the effort of the child to call the attention of his environment to *his* various individualistic type of performances, the prognosis was by no means so bad. These patients were often quite readily cured. Then there was another group in which the stuttering developed at puberty or later, under some special stress or strain. Cases of shell shock which developed at puberty or later, under some special stress or strain, which developed speech defects were illustrative of the latter group, and most of these could be readily and successfully treated. In cases in which the stuttering developed at a deep level, prognosis must be given at least with a great deal of caution, and for himself, Dr. Jelliffe said he treated such cases reluctantly, feeling that unless they had a high grade of real intelligence, not book learning, the outcome was quite unpredictable.

Mrs. E. W. SCRIPTURE said that after listening to two such eminent authorities she hesitated to say a word, since all she could speak of was the practical work. In her experience she had met just what Dr. Clark and Dr. Jelliffe had spoken of. Those cases of stuttering which had their origin at the lowest level were very difficult to handle. The three stages at which most cases of stuttering had their origin were mostly the first initial ones, at the first school age, and at puberty. It was of interest to note that the many statistics gathered all showed that boys were much more afflicted with speech disorders than girls. The girl was proverbially a smooth talker. It was rarely possible for a school teacher to undertake the cure of a stutterer without the aid of a neurologist and a psychologist; but the class exercises in muscle training which engendered confidence in the individual was of inestimable value. The cure of stuttering was, as Dr. Clark had so clearly shown, a matter of reeducation—an adjustment to environment which could mostly be secured by individual analysis and maintained through thorough and constant training. It was important to make a distinction between stammering and stuttering. The German *Stammeln* meant to stammer or lisp while *Stottern* meant to stutter. It was important to make this distinction because to lisp was one thing and to stutter was another. We might define stuttering as difficult speech—stumbling, hesitating, repeating and restraining, and lisping an organic disturbance, as mispronunciation. The *more* the lisper thought of his speech the better; the *less* the stutterer thought of his speech the better. Lisping was a mechanical defect which could quite easily be corrected, but stuttering involved a personality defect and required long patient individual work to overcome it.

Dr. CLARK, in closing the discussion, stated that it was a singular thing in these cases that mere analysis of the fault where it was a constitutional defect was not sufficient to relieve the condition. In addition to the supportive reeducation by analysis there must be a very distinct understanding of the psychological development of the instinctive life. The reeducational feature was the one he particularly wished to emphasize, because in both the literature and the practical handling of these cases we had been led to suppose that a cure might be effected along the way of approach to the initial fault. In effect a cure required both methods of approach, and it was only by such a complete synthesis that the best results were attained.

Some Diagnostic Points in Scarlet Fever. (An Analysis of 1,500 Cases of Scarlet Fever.)—Dr. HAROLD RUCKMAN MIXSELL presented this paper which included the results of their personal experience with 1500 cases of scarlet fever in the wards of Willard Parker Hospital during the past three years. He said he would not dwell on the better-known diagnostic points of scarlet fever but rather devote his time didactically to the less well-known signs, and briefly to touch upon certain points which were overlooked, not only on account of their evanescent character, but also

on account of their relative unfamiliarity to the average practitioner, who was only seeing occasional cases of this disease. Signs might arbitrarily be divided into two groups: (1) the more common signs; (2) the special signs. These signs might be grouped under the head of four states, namely: (1) The preeruptive; (2) the eruptive; (3) the posteruptive; (4) the stage of desquammation. The more common symptoms of the preeruptive stage were high fever, prostration, thirst; angina, especially in the submaxillary, postcervical and inguinal regions; the face was puffy and red; there was a rapid pulse, markedly increased out of all proportion to the temperature; the tongue was coated and vomiting might or might not occur; headache and lassitude, sore throat, with pain on swallowing. Usually there was an epidemic in progress or there had been exposure in isolated cases. In the eruptive stage, in addition to the above symptoms, respirations were increased; the strawberry tongue, dark red at the tip, the redness gradually extending backwards with enlarged papillæ (this was also seen in measles and diphtheria); erythematous rash, punctate and dull red-brown in color, appearing in twenty-four hours on the forehead and back of the neck. It rapidly spread down the trunk as far as the groin, with strips running down the inner side of the thigh, and backwards as far as the hip. It finally spread to the extremities. The rash usually became confluent and did not appear to be made up of single puncta. A delayed rash was not rare. Eight or ten days might elapse before its appearance. In the posteruptive stage there was a faded rash; the tongue was glazed with the papillæ still enlarged; the skin was dry and shrunken, a dirty brownish-yellow in color, with a distinct pigmentation on pressure, not as intense as in measles nor as long-lasting; there were sudinima, miliary vesicles and pustules; the subjective symptoms gradually cleared up. The temperature fell by lysis, a very characteristic point in the differential diagnosis of scarlet fever and measles. The fourth stage was that of desquammation, the character of which was typical. On the face there usually appeared a fine dusky desquammation; on the neck, chest, and trunk (middle of second week), the desquammation was flaky and the skin sometimes peeled in large strips. The palms of the hands and soles of the feet were the last to be involved. The amount of desquammation normally bore a definite relationship to the severity of the antecedent rash. The skin had a papery feel and resembled the skin of a very old person. *Special symptoms* not ordinarily recognized were during the eruptive stage: The mucous membrane of the cheek and gums was reddened and thickened; the dorsum of the tongue was dark red in color, and barely coated; the paratonsillar lymph nodes (at the angle of the jaw) were enlarged and tender to the touch; the mucous membrane of the soft palate and pharynx was markedly reddened, the redness being sharply bounded at the hard palate; the uvula might be red and edematous. During the eruptive stage there were fine puncta on the tonsils and palate. The lips were much redder than usual. The rash appeared on the temple, the cheeks were profusely red, the discoloration being confluent, and spreading over the bridge of the nose. The tip of the nose, the upper lip, and the chin were pale, presenting a triangular section of the skin, the base downwards. This was called circumoral, or perioral pallor *and was very diagnostic.* There was marked involvement of the flexor surfaces of the joints of the extremities, especially of the anticubital and popliteal spaces. The rash of scarlet fever was always generalized. Pressure of the finger on the skin would obliterate the rash; stretching the skin with a fingernail would cause a red line, with an area of distinct pallor on either side. This was not seen in all cases. Scarlet fever was often hard to diagnose in negroes. A point to be remembered was that *strong* pressure on the skin, especially on the soft parts of the upper arm or abdomen, would sometimes reveal the typical scarlet rash in the pallor which resulted. Occasionally there appeared small papules filled with serum or pus. In the posteruptive stage, purpura (simplex) was sometimes seen, and was probably caused by sepsis. Very slight pressure would sometimes cause numerous petechial hemorrhages. However, they were not diagnostic of scarlet fever alone. During the stage of desquammation pinholing, that was large flakes of desquammation with a perforated center, determined this point of desquammation. Peeling from the hands, feet, fingers, and toes sometimes resulted in the epidermis coming off entirely in a cast, en masse. Finger desquammation was pathognomonic of scarlet fever. The beefy tongue was the earliest manifestation of desquammation, starting on the fourth and fifth days of the disease. Where there was only a little desquammation, the heels and the anterior surfaces of the fingers and toes usually showed desquammation. This or the development of a late nephritis might clinch a diagnosis in cases in which the rash and other signs had been atypical. Second desquammation was a rare feature of scarlet fever and might appear from two to six weeks after the first desquammation. There was extreme sensitiveness of the skin to heat and cold; this was not usually described in the text-books. The hands and feet after desquammation were sometimes left soft, moist and clammy. The blood examination usually showed leucocytosis of 15,000 to 45,000, the increase being in polymorphoneutrophiles. This usually disappeared about the end of the second week. The eosinophiles might sometimes be diminished, although this was not constant. The amount of urine diminished during the preeruptive and eruptive stages, returning to normal during the posteruptive stage, and increased almost to polyuria during the stage of desquammation. Normally there might appear during the eruptive stage a small amount of albumin, a few casts and red blood cells. This was the result of high fever and must not be confused with postscarlatinal nephritis. Real kidney involvement usually occurred from four to six weeks after the onset. A detailed analysis of the 1500 cases was given. In these 1500 cases there were charted 81 different symptoms on admission, with 27 conditions not primarily caused by the scarlet fever. There were charted in these cases 92 various symptoms during the course of the disease, with 9 other conditions not directly due to the scarlet fever. The most common causes of death in the 1500 cases were toxemia, cardiac involvement, pulmonary involvement, renal involvement, and otitis. Relapses were unusual and occurred in fever hospital wards where there was a constant addition of new cases which kept the ward surcharged with infection. Dr. Mixsell said he had seen one well-authenticated second attack of scarlet fever in the last three years. It was evident that scarlet fever was a many-sided disease. This would be recognized by keeping in number of the large number of symptoms, sequels, and complications charted in this paper.

Dr. ROWLAND G. FREEMAN said he did not know what experience most of his hearers had had with scarlet fever, but in describing typical cases of scarlet fever to students it had occurred to him that it had been a long time since he had seen such typical cases. He thought that scarlet fever at the present time was running a rather mild course. Not all cases had high temperature, very red throat, and enlarged cervical lymph nodes. The temperature was not always high; usually the throat was red and the cervical lymph nodes were enlarged, but the rash found was not typical and not well developed. Some of these atypical cases were very difficult to diagnose. He had seen one case in which the rash came out only on the flexor surfaces of the limbs. A man of large experience said it could not be scarlet fever, as the scarlet rash always stayed out twenty-four hours, and the rash in this case had not done so. Later this child desquammated. Dr. Freeman expressed the opinion that the real diagnosis of scarlet fever rested on a characteristic desquammation. Scarlet fever did some very peculiar things. There was usually a high temperature by the second day of the rash, and the temperature then subsided; but he had seen cases in which it remained high up to the fifth day, the rash spreading and the temperature becoming higher each day. That condition was apt to alarm one, as it suggested complications. The temperature would then come to normal without any complications at all. In some cases after the first rise of temperature had subsided there would be another rise in temperature and another rash and another enlargement of the cervical lymph nodes. In his experience, Dr. Freeman said the dates for the appearance of nephritis were not exactly as Dr. Mixsell had given them. He thought they were from the seventeenth to the twenty-first day. If a child had not developed nephritis by that time, one could al-

ow him to get up without expectation of trouble. Dr. Freeman recalled a small epidemic of scarlet fever at he Foundling Hospital during which there were 10 ases, and none with a temperature over 101°, and some vent on to chronic joint disease and heart disease and ll sorts of complications. During another epidemic at he Foundling Hospital in March, which occurred at the ame time as an epidemic of measles, there was one hild with a denuded neck, the result of the breaking own of the cervical lymph nodes. Measles then began o crop out, and there were many complications and the oss of many of the children. He persuaded the sister n charge to put these very sick children on an enlosed porch. Those case put on the porch were all ither in the middle of or recovering from scarlet fever. After these children were put on the porch there was o more mortality, and even the child with the badly lenuded neck made a good recovery, and th denuded rea healed completely.

Dr. WILLIAM P. NORTHRUP stated that at the Founding Hospital, in conjunction with Dr. O'Dwyer, they ad seen all sorts of irregularities resented by scarlet ever. Granting there were many essential signs, Dr. O'Dwyer had canvassed the field very thoroughly, and hey had come to the conclusion that sore throat was o characteristic that scarlet fever seldom ran its course vithout the burning sore throat. They had observed he symptoms during an epidemic, and each patient tated that he or she had the hot, burning sore throat; ome complained of headache and some vomited. There vas no one symptom absolutely characteristic, but for urposes of help at the bedside the red throat was perhaps as good as anyone.

Dr. PHILIP MOEN STIMSON stated that at the Willard Parker Hospital last winter there had been a great many cases of arthritis complicating scarlet fever; this year there were practically no arthritis cases. There was one feature that the resident physician on the service a year ago brought out by which she had been able to predict the cases which would have joint manifestations. About half the cases that developed arthritis showed during the twenty-four-hour period before the first appearance of the joint inflammation a rather characteristic eruption of from five to thirty or more small reddish-brown spots on the body or extremities. Another point that had been of value in the diagnosis of scarlet fever, and that was applied with the British soldiers, was that one always found the rash first on those portions of the body which were warmest or under pressure, as under the straps, under the arms, in the groin. The value of this point was so well recognized that the doctors were instructed to inspect these areas in suspected cases.

Dr. WILLIAM ST. LAWRENCE stated that there was considerable dispute among men interested in this subject as to the importance of scarlet fever as a cause of cardiac disease in children. Some workers thought that it had little bearing on this problem, while others believed that scarlet fever was an important etiological factor. Still others believed the heart was more likely to show involvement if arthritis was present during the attack of scarlet fever. For this reason he would like to know Dr. Mixsell's experience on this point. Were the cases which he reported examined on admission and during the course of the disease? Was cardiac disease absolutely excluded at the onset of the attack of scarlet fever, and upon what facts and according to what standards was the heart considered to be the site of new disease?

Dr. MIXSELL, in reply to Dr. St. Lawrence's question, said he thought there was no standard for the heart cases. The findings on admission were simply filled in on the charts. Most of the cases considered in this study Dr. Mixsell said he had not seen himself. He agreed with Dr. Freeman at to the atypical course of scarlet fever. As they saw the disease at the Willard Parker Hospital, all the signs were evanescent and disappeared rapidly. The only way one could be sure of the diagnosis was by finding desquammation or nephritis. He also agreed with Dr. Freeman that the primary symptoms might disappear, and then there might be a recurrence with all the signs and symptoms of the disease. One found nephritis at the beginning of desquammation, which might be from five to twenty-one days from the onset. In making the essential diagnosis, Dr. Mixsell said he agreed with Dr. Northrup in regard to the sore throat. When one found the strawberry or raspberry throat which desquammated and looked quite beefy, one could almost prognosticate the stage of the disease, and certainly could make a diagnosis. The rash, it was true, appeared first in the warm areas due to skin apposition, the usual sites being in the axillary, popliteal and gluteal regions.

Results of Active Immunization with Diphtheria Toxin-Antitoxin in the Public Schools of New York City.—Dr. ABRAHAM ZINGHER made this presentation, which was illustrated by lantern slides showing the statistics collected in his work in the public schools of the city, in other schools and in institutions. He called attention to the fact that there had been a large increase in diphtheria in 1921, from 50 to 200 per cent. in almost every state in the country. That had perhaps stimulated health officers to take an interest in the newer methods for the control of diphtheria, which where the Schick test and immunization with toxin-antitoxin. In the second place the results obtained during the past eight years by these methods had been very favorable, having shown that 85 to 100 per cent. of non-immune children became immune to diphtheria after the first series of toxin-antitoxin injections. When it came to the work in the schools they had met with great variations in the results of immunizing injections with the same strength and preparation of toxin-antitoxin. In retesting children who had had one series of injections the discrepancies varied all the way from 75 to 80 per cent. of successful immunizations in some schools to 25 to 30 per cent. in other schools. It was found that the percentage of those becoming immune after receiving one series of injections of toxin-antitoxin was in inverse proportion to the percentage of positive reactions following the original Schick test. Where the number of positive Schick tests was high the number of children becoming immune after one series of injections was low. The reverse was likewise true. It was found that the children in the schools in the poorer sections of the city gave fewer positive reactions to the Schick test and responded to the toxin-antitoxin injections with a higher percentage of immunes than the children in the better sections of the city among the well-to-do. They had obtained as high as 60 to 70 per cent. of positive Schick reactions with the original test in schools located in certain sections among the better classes, while in schools in crowded sections of the city only 15 to 20 per cent. gave positive Schick tests. The explanation was that the children in the poorer sections were often exposed to mild doses of diphtheria organisms which brought about a certain degree of natural immunity. Among the children of the better classes this exposure was not present, because they were segregated and isolated, and they therefore remained susceptible. It was evident that the toxin-antitoxin brought about a better response in the children in whom antibodies had been stimulated by previous exposure. Even if they still gave a positive Schick reaction they responded readily to the immunizing doses of toxin-antitoxin. Dr. Zingher stated that he had seen no harmful effects from the Schick tests and the toxin-antitoxin injections. In some children there was a little fever and a sore arm, but their reactions rapidly cleared up. He had thus far tested over 100,000 children and expected soon to finish testing the children in every school in Manhattan and the Bronx. Among all these tests and injections he had not seen one case of infection. In closing, Dr. Zingher made a strong plea for the active immunization of all children of the preschool age. In order to bring about an immune child population it was necessary to begin early and to immunize all children from one to five years of age, inasmuch as 85 per cent. of the cases of diphtheria occurred among this group. The injection of toxin-antitoxin in the newborn brought about very little immunity, as at this time the infant was protected by the antibodies it had brought over from the mother. The injections were effective, however, after the child reached the age of six months.

Dr. EVERETT W. GOULD stated that these reports which Dr. Zingher had made regarding the Schick tests and toxin-antitoxin immunization in the public and private schools were most interesting and valuable, for it was only from the results of thousands of

cases that it would be possible to formulate the position which the practising physician should take in respect to the use of this method of controlling diphtheria. He felt that Dr. Zingher was probably not yet ready to state what the Board of Health would recommend as the universal practice of the medical profession on this subject, and it would be too much to expect him to state the details of such a far-reaching problem. But he felt quite sure that the goal for which they were striving was that every child should be required to be vaccinated against diphtheria just as it was now required to be vaccinated against smallpox. Before that time would come it would be necessary to educate both the physician and the public. In order to accumulate definite data on the subject it was important that every one who had access to material should use it as scientifically as possible. To-day, Dr. Gould said he thought there was no one who had done scientific work who doubted that the Schick test when properly done and properly interpreted was a reliable measure of sufficient antitoxin to protect the individual against diphtheria. If now we had a method by which an active and persistent immunity could be aroused in an individual, we should encourage any work which would ultimately determine the details of this method. There naturally would be much discussion and differences of opinion in regard to the size of dose, the strength of the toxin, and the length of time the immunity would last. There was also the question as to the time when it should be given. It was useless to give the immunizing injections during the first six or eight months of life because the child was passively immunized during that time by the antibodies it had inherited from the mother. If one waited until the child was in school there were a good many bad reactions which reflected on the teacher and the doctor and brought the procedure into disfavor. Furthermore, it was important that the immunizing injections be given in that period of life when the child was most susceptible, namely, from two to six years. The Board of Health could not easily compel the giving of toxin-antitoxin to every child two years of age, but they could compel every child to show a certificate that he had a negative Schick before he could enter school just as they compelled every child to show a certificate of vaccination against smallpox, and this would have an influence in having children vaccinated against diphtheria at an early date. The public would be willing to do this when they saw that the incidence of diphtheria was actually diminishhed by this procedure. It was a difficult problem and could not be worked out in a few years. Even more important than the statistics which had been shown this evening would be the statistics in regard to the incidence of diphtheria in schools in which the children had been immunized. It was hoped that these reports would be much more convincing to the public and the profession and lead to a hearty cooperation on the part of all.

Oxygen Therapy in Premature Infants with Cyanosis.—Dr. HARRY BAKWIN read this paper, in which he said that cyanosis was a frequent symptom in premature infants. It might be associated with a number of different conditions, such as cerebral hemorrhage, bronchopneumonia, sepsis, etc. Not infrequently, no organic basis was found for the cyanosis, except, perhaps, a few atalectatic patches in the lungs. Usually, a diagnosis during life was impossible. Whatever the cause, however, cyanosis was an extremely grave symptom and required immediate treatment. The method of administration of oxygen was of the greatest importance. The funnel method which was so widely used was useless. The widespread use of this ineffective method of oxygen administration had done much to discredit oxygen therapy. At the New York Nursery and Child's Hospital oxygen was given by means of a rubber tube about one-quarter of an inch in diameter, with a hole in the end of the tube. The tube was inserted into the infant's mouth and held in position with a glass collar, which fitted snugly over the tube. The collar was held in place with tape, which passed through perforations in the end of the collar and was tied back of the head. Dr. Bakwin demonstrated this collar, showing that it was a simple device which eliminated the need of a nurse in constant attendance during the oxygen administration. The results of oxygen administration in two infants with severe cyanosis were reported. In both these infants the cyanosis entirely disappeared, the babies becoming rosy pink in color, the pulse markedly improved, and the oxygen unsaturation of the blood, which was very high in both instances, falling to normal. One of the two infants thus treated was five months of age, and seemed in every respect a normal baby.

Dr. L. C. SCHROEDER said he did not know any finer test of a man's fitness as a pediatrist than his ability to offer an explanation of cyanosis in prematures and to outline a rational treatment for it. The reason pediatrists knew so little about premature infants was because in their initial training in pediatrics they had little opportunity to see the new born, and as a corollary it followed that there had been little work attempted such as Dr. Bakwin had done. Much time was spent in talking of lowering the mortality from various causes in infancy, and much had been done in a preventive way while little was being done where it was most needed. Since Haldane's work had been published showing that when oxygen was given by funnel 98 per cent. of it was lost in the air, it was not being given in that way. The glass collar which Dr. Bakwin had devised kept the child from closing his teeth on the tube and shutting off the oxygen. An oxygen tent had been suggested as a means of administering oxygen, but Dr. Schroeder thought the problem would not be solved until some one devised an oxygen chamber. The work of Meltzer and Haldane suggested that it was time for some of us to see if we could not place oxygen therapy on a sound basis because oxygen was certainly a tremendous help in certain conditions. We must remember that anoxemia had a distinct effect on all the bodily structure, especially the brain, often leading to permanent damage. That being true, how great must be the effect of a lack of oxygen on the tissues and brain of a four-pound baby and how little chance he had of surviving unless cyanosis was relieved!

"Thinking About Nothing."—According to Gueniot certain individuals are capable of such abstraction that they can think without object or content. Denonvilliers claimed many years ago that ability to think in blank was a sovereign remedy for obsessions, neurasthenia, and other mental states. Alexander Dumas, Sr., had the same faculty. Gueniot strives to make his neurasthenics cultivate this habit.—*Le Progrès Médical.*

Swimming Tank Conjunctivitis.—Paris has as a rule been free from this affection, only an occasional case or two being reported at long intervals, but recently eight cases were traced to one tank. The affection was first heard of in Berlin in 1899. The bacteriology and the inoculation tests were negative. Trachoma, ordinary follicular and Parinaud's conjunctivitis can readily be excluded, and the condition is entirely benign.—*La Presse Médicale.*

Carcinoma a General Disease.—Sauerbruch, the distinguished surgeon, states that at the present time we are headed toward the old humoral or constitutional theory of the nature of cancer. The local manifestations are but local manifestations of a general disease. The doctrine of Virchow that the constitutional manifestations of cancer are invariably secondary is being abandoned.—*Wiener klinische Wochenschrift.*

Jennerian Vaccination of Leucemic Subjects.—Ramond, Jacquelin and Borrien state that vaccination is very seldom contraindicated even for the time being and is tolerated alike by subjects with high fever and those in advanced cachexia. There is one class of patient, however, who must be approached with great caution. This is the leucemic and especially the victim of chronic lymphadenia. In one case lymphademic leucemia a powerful reaction was set up which seems to have been entirely local and painless. The subject died in about twelve days, and although he was at the time a victim of incurable disease this result was regrettable. In lymphadenia without leucemia there was no reaction, but the original affection grew worse. The rationale of such accidents is that vaccine naturally gives rise to a leucemic reaction and hence must be contraindicated in all leucemic patients.—*Le Bulletin Médical.*

Medical History.

CRITICAL AND DESULTORY REMARKS IN THE LIGHT OF THE HISTORY OF ANCIENT MEDICINE.*

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IX

On the whole there has been no one department of medical research which has offered so much that is suggestive and to the intelligence of the world at large so much that is acceptable to it as psychology. Medical psychology has inevitably linked itself to sociology in such a way it has attracted to medicine in general, in a very considerable degree, that sympathy of the public which has largely grown cold to what bacteriology has of late had to offer, once taken up by the curious with such avidity. Singular to say, the interest of the public in serology, probably presenting the most promising, certainly the most astonishing, of the recent advances in medical science, has been very meager indeed. Sneer at it as we may, this is a subject which should be very seriously considered by medical men, the public interest in and the public sympathy for scientific work in medicine. Public health, which has such claims on the public and which has striven so earnestly to enlist public sympathy, has alienated a very important if not a very numerous element in the public, by the methods of publicity it has adopted. There can be no doubt of this. All over the world is seen the revolt against the modern publicity given not only to things which have not been digested, not only against the flaming publicity demanded for diplomacy, where there is plausible excuse in the trend of democracy, but resentment against the impertinence with which professional exploiters and people of bad taste, without any excuse, drag modest men and women into undesired notoriety. I hesitate to say there has not been gained thereby for many causes more than has been lost, but science and medicine especially, because it tries to be a science, should not be placed among these. If it is a fact that more has been gained than lost by this policy in numbers, the question still remains for medicine if more has been gained in weight, if quantity can in practice replace quality. This seems to parallel the problem of modern democracies. Can the loss of the talent of the few be made good for politics by raising the average intelligence of the many? They may be parallel problems, but they are not identical and the answer to them is not the same. Public health agencies have, however, in instructing the public, not only adopted the ways of some branches of commercial life, most offensive to modest and earnest and high thinking men, but they have based much of that instruction upon theories, which, if often of great professional interest for moderate lengths of time, do not warrant the positive assertions made in flaming posters and in folders sent through the mails, written in wretched taste. A certain number of the practices based on these theories of the hour urged, nay forced on the public, have been manifestly inefficient, and with the crumbling of the theories on which they have been based they have had to be abandoned and the public, without the assistance of the attractive nurse on the posters, has silently taken note of it. A large portion of the public takes no account of the general fallibility of human judgment and even among the unthinking, medical stock has gone down and a considerable percentage of indifference has been added to the disapproval of other classes in the mental make-up of the public. The taxpayer as well as the charity giver has been moved by such methods to contribute money to endeavors whose demonstrated futility has none the less powerful influence upon them because they are silent as to their own lack of self-restraint in giving way to such influences.

*See MEDICAL RECORD, November 26, 1921, and February 4, 1922.

X

However, whatever may have been the cause of the manifest decay of public interest in some forms of altruistic effort in which the medical man has been an important factor, psychology seems surely stepping in to fill up the gaps and some of the aspects of the phenomenon are sufficiently interesting to warrant passing notice, quite independent of the importance to the medical profession of its maintaining the tie of interest and sympathy which binds it to the rest of the body politic, but that in itself is not devoid of interest on our way to enter the affiliations modern thought has with ancient ways of thinking and ancient influences on action. In psychology there is, in its very name, the immutable nature of the human soul, a bond of human sympathy not only with ancient thought but with contemporary thought and feeling in that part of the public, usually unresponsive to medical science. That link of interest has been ready at hand, deep seated in the ineradicable tendency of man to stand with greater interest before that part of the great unknown which has to do with his survival after death. Repugnant as it seems to be to a large number of materialistic men in science to touch upon matters so immediately running into metaphysics, they will find with advancing years that if they expect to keep up the present flow of ducats to their leaky lockers or to excite the movement of new streams to their own realms of research, they will have to take note of this ever underlying current in men's minds, which at certain epochs in the pulsation of the world thought as well as of world emotion comes to the surface. The fact that it has been, now for a long period of time, largely suppressed in the minds of scientific men, and the fact that it has most lain on the surface of uncultivated minds, should not mislead us and would not mislead us but for a sort of foolish caste arrogance which a few scientific men seem to cherish as their most precious inheritance of past generations of science, in which boldness and originality of thought once encountered a similar tenacity of ancient but outworn belief. It is now the sign neither of boldness nor of originality of mind. For the most part it is the mark of crass ignorance and superficiality of thought.

As a matter of fact it is among the biologists, obfuscated and perplexed by the complexity of the processes and forms of living things that we find chiefly that stubbornness to accept no explanation but the physical one. The metaphysical tendencies we find chiefly among the physicists and the psy-

chologists. We find Lodge and Crookes in territories close bordering on the beyond, peering into domains that are taboo to the man with one eye glued to the eyepiece of his microscope and the other eye not functioning. The cloud in his tubes is matter of such interest to the serologist he cannot see beyond the mist, even if he should look. The stark simplicity of the electron in close proximity to that vast field beyond sense is not for such troubled ones.

XII

My understanding of embryology is weak, but I believe it is said the brain is developed at a later stage than the organs of sense from the same external blastodermic layer. If we are to suppose, as so many evolutionists, following Haeckel, were disposed to do a generation ago, that on the whole the evolution of the individual *in utero* and in immaturity afterwards is an epitome of the evolution of the species, if we take these old discussions from the shelf, where they have lain for so many years, but which may yet formulate some adumbration of the truth, we see that there is a biological basis of fact behind the declaration of the physiologist that the mind of man is an epiphenomenon. This may be so, we will assume it is so, but if so then we see the reason of our difficulties, when as mystics we wrestle with the materialist. How can an organ developed from the same origin as the organs of sense and in an evolutionary, if not a teleological, destiny evolved for organs of sense, trained by them and for them at least, how can such an organ function beyond sense?

Now let us go back to the ancients, whom this time we have approached from a great distance and mention Euclid if only as a hint of what further excursion into the present we still have to make. After all, he is the most familiar figure in that distant past whom we associate with the start of the mathematical globe and less perfect geometric figures rolling down the galleries of the ages. For all this time we have been little troubled with the troubles of the more ancient Greeks, but they must have been a sore trial to Euclid of Alexandria 300 B. C., starting in to clear up for the new world Alexander had made, just as we are trying to clear the way for the materialism following in the wake of a triumphant plutocracy. It has been thought all these long ages he had cleared up the difficulties Socrates talked of with Euclid of Megara a hundred years before. For many generations of men, down to our own time indeed, it was apparent how his figures and blackboard diagrams gradually in the mind of youth assumed the forms which our senses assured us were correct. The logarithms of the calculus patched out our senses apparently, but now comes along Einstein and shows us we only need some millions of miles of perspective beyond our senses to convince us our senses had the gift of the brain from the gods for local use only. Lodge, who, perhaps from the force of believing in an ether, inconceivable by the brain of man, also points toward something I for my part and most of the men I associate with cannot see at all. But men of science are a small part and, except remotely, a very insignificant and a very unnoticed part of the public, who in the mass have always believed in something of the kind or something that stands for it in the argument. Now comes along Bergson with his mysticism—a mere aberrant by-product of Lodge and Maxwell and Poincaré and the psychologists who scoff at him and they also all tell us tales of the unconscious, not allowing us to call it the subconscious; is it because they, too, have a doubt it has anything to do with consciousness? For Bergson goes further and links it up with something outside of and beyond man and we men of science lose track of him altogether, but not of Einstein, neither we nor the public. Now I cannot help yoking all this up with the difficulties of the neovitalists in biology. They flee to-day very much as Aristotle did to an *entelechy* in the shape of a germ plasm whose nature it is as impossible for the mind of man to grasp as the ether of the physicist or as the non-existence of space or time in which we live and work and have our holidays.

I must add a word here to escape the reminder, to which I lay myself open from those physicists who seem to have a rather insufficient knowledge of ancient philosophy, that the relativity of Protagoras has nothing at all to do with the relativity of Einstein. From their point of view, of which I in my turn may also have insufficient knowledge, they may be correct and I do not even feel capable of maintaining that from the standpoint of the philosopher they may not have a good case. My concern here is primarily an exposition of the currents of popular thought, mistaken or otherwise, and the phenomena which have set them moving toward an era of mysticism in which we bid fair soon to be immersed. I am not presumptuous enough to declare how far that current will carry us or how long it will bear us on its crest, but the tendency is unmistakable. The right or wrong of it, the true or false of it is not for me. It can properly be left to those coteries of science, which settle all things by joint resolutions of committee from time to time, when they think the public is really going too far astray, as they once attempted to do for the tubercle bacillus question, by Public Health posters, while at the same time emphasizing the necessity for keeping the mind open to doubt and skepticism. With these gentlemen it seems to be important what you doubt and they seem to take for their province the making clear what their fellow men are to be skeptical about.

XIII

In our difficulties then with the germ plasm we get into touch with Aristotle[1] and with Hippocrates and his dynamism,[2] to which in despair he attributes all phenomena he cannot otherwise account for, a dynamism which has very much the aspect of the devils of primitive man. It is refined a little, as was Socrates' dæmon, around which Plato has thrown the glamor of his prose,[4] but for all that all of them are to be tied up in the same bunch with the modern germ plasm and placed on the same shelf with Bergson's mysticism and Einstein's physics and the spiritualism of Lodge and Crookes. It is plain that all these things, which it has taken me such a long time to collect, belong in the same category with the devils of disease of primitive man. This is the deep root from which springs the interest the people take in psychology and we see how respectable are its affiliations. It is wrapped up with the deepest thought and the strongest aspirations of

the ages. The most forward men of ancient times, of modern times as well, leave names or have names which cluster around it in the history of thought. It is not for me, a mere materialist, to treat of such a subject in a spirit either of contempt or of ridicule. Scientific men, most of them, try to avoid it, say it is not adapted to the experimental method. What was that definition of the true scope of science, something susceptible of being tested by experiment, or observed by the senses? Some of the presidential addresses before their sections can perhaps be rescued from the dust bins. It is to be hoped that the history of scientific thought, written in another generation or two, will deal gently with them. However desultory the remarks and however presumptuous the criticism, it is in the light of ancient history these modern problems should be judged. The light is more illuminating than the remarks of the presidential specialist on general subjects.

As we look back across the ages at the course of philosophy, of which medicine, in its guiding principles, is the specialty Celsus said Hippocrates made, we perceive that the psychologists are linking us up, despite their earnest declarations they are materialists too, with something the public cherishes and has always cherished. The reasons for the persistence of religious feeling are not any too satisfactorily demonstrated to us as materialists. The rise of the fear of death and the anxiety for the future is not all explained by the evolutionary doctrine that without them neither man nor any other animal would survive. All men do not fear death. Many savage races are indifferent to it, some taking their own lives in sport or from some passing whim.[8] However the evolutionary answer on the whole stands good. For my part, "que sçais-je?", but if I were in the prophet business I should say we were in for a decade or two of a steady drift toward mysticism which has already contaminated the very portals of the temple of science itself.

Now at the house of Euclid of Megara occurred, in the imagination of Plato, that wonderful discourse[9] Socrates carried on with Theætetus and Theodorus about this very matter, which Einstein has introduced anew, straight out of the figures of Euclid of Alexandria and Newton of Cambridge. I do not mean the relativity of time and space and the horrible equations of pure mathematics which prove that Euclid and Newton were a little local in their laws for these, nor to the more interesting observations of phenomena which demonstrate the fact. I refer to the relativity of knowledge itself. Cyrene was the forerunner of Alexandria at a distant spot along the coast land of Africa and Socrates had his eye on a geometrician from there by the name of Theodorus who was having some success with the Athenian students. "I see that a great many of them follow you, in which they are quite right," is the bantering remark of Socrates, "considering your eminence in geometry. I should like to know if you have met with any one who is good for anything?" By this inquiry he finds that Theætetus, a model youth, has been indoctrinated by Protagoras with the very disturbing philosophy which underlies the demonstrations of Einstein "that man is the measure of all things." Thereupon, with evident joy in his soul Socrates girds himself to the task: "I am about to speak to you of an illustrious philosophy, in which all things are said to be relative." But why go on? Pick up the newspapers and magazines on the morrow of Einstein's appearance before the general public. If you will take the trouble to compare the gist of their news, you will find in it the superficies through which Socrates plunged, only not half as well set forth as it is by Plato, and he broaches the more intricate details when he declares "there are plenty of proofs which show that motion is the source of that which is to be and becomes," that is, reality, "for fire and warmth, which are supposed to be the parent and nurse of all things are born of friction, which is a kind of motion." It would not be candid to allow the reader to expect to find in this dialogue of Plato everything as fimiliar to us as this, but unless he belongs to the inner shrine of the mathematical temple he will have less difficulty with Plato and Socrates than with Lodge and Einstein. At any rate he will find even the popular discourse of Einstein and his ilk illuminated in the light of the history of ancient philosophy.

XIV.

It has been my aim in this series of papers in the MEDICAL RECORD, incited by a browsing in the history of ancient philosophy and of medicine in particular, to assist, so far as my limitations allow, in the task of building a bridge across the ages that we may sharpen our wits in a world of intelligence, inferior to our own, it is true, but in an era in which lived a people vastly more alert in their mental processes, more acute yet more pliable in the fiber of their thought. In some of the former sections we have mingled much with Cicero and Celsus and found a lesson or two in the forms on which they modelled what they had from Plato and Hippocrates and the epoch which was already in the time of Cæsar ancient history, but as we pass from the glory of Athens to the glory of Rome we can not fail to take note, and if we expect to know the history of the evolution of medicine it is vital we do take note, that we have left behind us the essential superiority of intellect which strikes every student of Plato and Hippocrates, of Aeschylus and Euripides. If we were to continue the thread of thought we took up in the discourse of Socrates with Theætetus where we might expect to find it in Cicero we would soon perceive what a feeble follower in philosophy he was of Aristotle and Plato, and in Celsus how limited is the sweep of his intellect, how it lacks, even as far as it goes, incisiveness as compared with that of Hippocrates. Like some of us modern specialists, when called on to deal with the deeper and wider problems of the ages, when he is spread out over a wider area we find the material in Cicero hardly suffices for the thinnest sort of veneer. What we have done in our little cubby holes of specialties in science is the only thing which saves us from ridicule when we stray beyond them. We have every reason to be thankful for the kindness which has gathered around our modest endeavors in time past in narrower fields. Cicero was not a shining light of philosophy, but was, nevertheless, a keen observer and a matchless delineator of what he heard and read.

XV.

The psychologists with whom we began, have had much to say which is illuminating and suggestive about the subliminal burying of physical pain and the same can be said of mental pain and the sorrows of the soul. The use of this stern discipline is what makes character. It is a cure, a mind cure if you will, which differentiates the weakling from the strong man. It grows in efficiency with use. It excites awe and admiration when we see a man triumphant over the ills of all kinds which overwhelm others. The establishing of habit is taken for will power. It is the basis of the cult of the stoics, to which sect so many of the ancients were the avowed or the pretended adherents. A man's preoccupations allow him to exercise a certain empire over that brain organ developed, as we have seen, from the blastodermic layer of the senses, the external one, the one in contact with the environment. It seems a sort of lifting one's self by one's boot straps, but it works. It allows him to bury his pain, world pain or belly pain, in his subconsciousness. The martyr sings hymns and clings smiling to his beatitudes in the midst of flames, the true believer walks serene over red hot ploughshares with bare feet, the vilest wretch who ever breathed, with thoughts of the censure or the admiration of the gang after he is gone, he knows not or cares not where, since he has to go, jokes with his jailer on the way to the electric chair. The martyr, the hero, the patriot dying for his country has in this line no preeminence over the thug and the worst of villains who have perished with the universal consent of society. Is not this a miracle? What is this noble, stoic faculty which conquers sense and bends its own organ to its will? Can the psychologist tell us? The moralist has not succeeded very well. Now this is what psychology is going to do for many things far beyond the domain of medicine. It is going to explain to us the secret of the stoic, the faculty by the exercise of which he dominated the whole religious thought of the world before the advent of Christianity, itself a certain ecstacy, which in its way too conquers sense and still rules the world. We see, therefore, the science of psychology astride of the ancient world and the new world alike, with one foot in the stoicism of Zeno of Citium and the other in the modern fripperies of Mrs. Eddy. We see it then reaching far out beyond conventional hypnosis, throwing a light on much of ancient history and as much at least on modern sociology.

I think I have made it quite plain that psychology has not only found a hitherto unoccupied field of usefulness in the world. It is seen to be the cement which binds society together, which explains one problem of one section of the world to another. It is unfortunate but perhaps unavoidable that it joins hands, frequently soils its hands, with various interests which are repugnant not only to decency but to common sense, but the evidence of the hold it is securing on the attention and the sympathy of the public is one which science and medical science in particular has every reason to view with satisfaction. As it reaches all the ramifications of medical interests, is intimately wound up with the problems of all its specialties, so we find it opening up vistas that let in a light to us from the remotest epochs in the history of the evolution of medical thought and achievement.

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MOLIÈRE AND THE PRACTICE OF MEDICINE IN THE TIME OF LOUIS XIV.

By DOUGLASS W. MONTGOMERY, M.D.,
SAN FRANCISCO, CAL.

THIS is the tercentenary of a man who, though not of the profession, has been of inestimable value to us by holding up for our inspection the faults and extravagancies into which we are too apt to fall. He lived at a time and in a city in which those faults were exaggerated, and he had the genius to fix them in undying literature. This man was the great French dramatist Molière.

Recently I attended a good rendition of "Le Malade Imaginaire," a play filled with medical allusions, for Molière, both through his acquaintances and from natural inclination, was deeply interested in medicine; in fact under Gassendi he studied philosophy, which then consisted largely of physiology. His first play was on a medical subject, as was also his last. Before all his medical friends, and there were a considerable number, there was Mauvillain, his own physician. According to Molière, Mauvillain promised him before a notary thirty more years of life if he could obtain from him a certain favor from the king. Molière said this was even more than he required, it would be enough if he solemnly engaged not to kill him.

Molière was one of the few in medicine who, with a clear vision of the weaknesses and follies of mankind, had that abiding charity which prevents them from growing bitter. On the contrary, he had an infinite wit, kindliness and gaiety of spirit which enabled him to expose entertainingly ridiculous bombast and pretentiousness, a task always congenial to the Gallic mind.

The whole play is so full of medical allusions as to constitute an invaluable and vivid description of medical practice in the time of Louis XIV. It shows the profession's uncritical assumptions, its trivialities about the pulse, its liver lore, its pedantry, its arrogance, its willful ignorance of science, and its lavish employment of purgatives, enemas, and phlebotomy.

Its ignorance of science was not altogether a fault, as there was very little of that sort of knowledge then available, but what there was to be known was not welcomed by those in power, but, on the contrary, was vigorously resisted, and this furnished Molière with many an opportunity for a sharp stab.

This resistance was not, as might be imagined, that of stupidity, but of a very active intelligence, and how vigorous it was may be gathered from the fact that the University of Paris successfully opposed the teaching of the circulation of the blood

for more than half a century after the appearance of Harvey's treatise, "De Motu Cordis," in 1628.[1]

That the members of the faculty were men distinguished, and rightly so, for their learning is shown by the fact that Riolan, one of the most distinguished of them, was the only opponent whom Harvey took the trouble to answer. In explanation of this, however, it must be said that Harvey was not of a controversial nature.[2]

The scientific innovators were jestingly called "circulateurs," a common name for "quacks," and this, as will be seen later, is referred to in this play.

Molière did not limit himself to criticism of the physician; the patient is also severely dealt with, and the chief character in "Le Malade Imaginaire" is, as the title indicates, the patient; and I suppose no one but a physician can fully appreciate this hypochondriac, with his craving for sympathy, his exclusive attention to himself and his own ills, and his childlike outbursts of temper. How bitterly he complains when forced to attend to an incident in his family that he had not "the leisure to think of his own illness!"

The introductory scene is well worth medical study. It introduces the hypochondriac, seated in his chamber garment before a table, perusing his drug bill. He is indeed a very lively invalid. Attached to the back of his chair is the long cane with the red top which we are so used to seeing in pictures of the Grand Monarche. He cannot leave the room without the assistance of this cane, but he does not always use it as an aid to his steps, which on occasion are very lively steps indeed, but also for threatening and corporeally punishing the servants.

The druggist has described each item of his bill, and set opposite each its cost. It is a most minutely itemized account.

First on the list was "a little sinuative enema, preparative and emollient, to soothe, moisten, and refresh the bowels of the gentleman." On reading this the patient remarked that it was a pleasure indeed to have the apothecary draw up his bill in such polite terms, but that civility alone was not enough. One should be reasonable and not skin the public. With that he said that "when a druggist writes down twenty sols, he really means ten," and so he cut down this item 50 per cent. In pursuing further his criticism of the bill he noted a "good detergent clyster composed of double catholicon, rhubarb, honey of roses, et cetera, to sweep, wash out, and clean the lower bowel of monsieur." And, by the way, it may be remarked that the term catholicon is our familiar word catholic, which means universal (Greek *catholicos*); a universal clyster to clear out *all* the humors. This he cut down 60 per cent. There was also set down in the bill, as having been furnished on the same day, "a julip for the liver both soporific and somniferant." This the grateful patient did not object to, for, as he explained, it really soothed him to sleep. And that in this instance he paid in full is worthy of our attention.

The next item was "a corroborative, *i. e.* a strengthening (Latin *corroborare*) purgative composed of fresh cassia, Levantine senna, et cetera, compounded according to the prescription of Dr. Purgon, to expel and evacuate the bile of the gentleman." The cost of this elicited the remark that "It is no time for joking, and it is necessary to live with as well as by one's customers." On the same day he had an anodyne and astringent potion, to sooth the nerves as we would say. On the twenty-sixth of the month there was set down "a carminative clyster to expel flatus; this was to be repeated in the evening." The next day he received "a good compound medicine to hasten, set going, and expel the bad humors." Then came a draft made of whey, clarified and sweetened, to soothe, temper, and refresh the blood. And besides, on the same day, for we have now come to the twenty-eighth day of the month, there was delivered "a preservative cordial containing twelve grains of bezoar, syrup of lemon, pomegranates, and other things according to prescription." On observing the price the sick man exclaimed, "Easy, my friend, if you please; if you act in this way no one will wish to be sick," and with that he cut a good slash from the price.

On finishing his perusal of the bill and adding it up he found that he had taken eight bottles of medicine and twelve enemas during the month, and he was not astonished to find that he was not quite so well as during the previous month, when he took twelve bottles of medicine and twenty enemas. He said he would have to see his physician, Dr. Purgon, about this so that it might be better arranged.

At this point Toinette, his chambermaid, enters and, after passing a few remarks, none of which were pet names, Argan arises from his chair, which was indeed a chaise percée, and asks Toinette to remove it, and at the same time inquires if she thinks the stool a good bilious one. Toinette retorts that she does not mix in such affairs; that the apothecary might stick his nose into that since he had the profit. She further remarks that both the physician and the druggist have a gay time with him; that in him they have a good milch cow, and that she would like to ask them what malady he has, indeed, to require so much medicine.

All the functions of the body, when carried out physiologically, give rise to pleasurable feelings, but the hypochondriac wished to get altogether too much entertainment out of his alvine discharges. In two instances in the play he leaves the room hurriedly, as Marcellus in Hamlet would say, "to seek a more removed ground," and on his return he reseats himself in his chair with a wonderful expression of contentment and accomplishment on his face.

The hypochondriac was in mental servitude to his physicians. He dismissed Toinette's criticisms of them by calling her a dunce who had no right to criticize the rules and regulations of the faculty. He was equally opposed to his brother's criticisms. In the minutest details the doctors controlled his life; as, for instance, Dr. Purgon had told him to walk back and forth in his chamber for exercise, and he had forgotten to ascertain if he was to take this walk in the length or in the breadth of the room. On another occasion he asked Dr. Diafoirus the Elder how many grains of salt he should put in his egg. The answer came back promptly, two, four, or six, the even numbers; the odd numbers being reserved for medicine.

One day when Dr. Diafoirus called on him he

excused himself for not taking off his night cap, saying that Dr. Purgon did not permit him to do so. Even I can remember when "cold" was considered the chief etiological factor in medicine, and nearly all the long list of nervous diseases was referred to it. The paradigm was herpes zoster from a cold draft impinging on the side of the head.

The doctors in this entertaining play are Dr. Purgon, who evidently is a consultant and a most important person, to whom everyone refers all knotty questions, and Dr. Diafoirus, who is a family practitioner, and his son, Thomas. Toinette, the previously mentioned chambermaid, also comes in disguised as a doctor, and in this capacity gets off a number of good things.

The names of the doctors denote their chief occupation. Purgon is from *purgare*, to purge, and the suffix "on" would, as in Spanish, mean something large; therefore, "a mighty purger." Diafoirus would be from the Latin *foria*, a liquid stool, and therefore diafoirus would mean a liquid stool shot through. Both of these gentlemen lived up to their name, and, as we have seen, their patient lent his body, as Toinette would say, gaily to the exercise of their enthusiasm.

Thomas Diafoirus, the son, is the character who is so contemptuous of the "circulateurs," and he also mentions another feature of the times—the public dissections. Vesalius, 1514-1564, and Fabricius had lived and were ancient enough for their works to become sanctified, and public dissections were held, so that it was not unbelievable that this young prig, Thomas Diafoirus, should ask the young lady whom he was courting to attend, as a diversion, a public dissection at which he was to act as demonstrator. To be sure, Toinette made a tart remark on it.

In mentioning the circulation we must not omit one of the most delicate bits of satire in the play.

Diafoirus the Elder suggests to his son that he take the other wrist of the patient and describe the pulse as he feels it. They address one another in stilted Latin, and the youngster's first remark is that the pulse is that of a man not in good health, that it is slightly resistant (*duriuscule*), not to say resistant. This appreciation of a clinical fine point reminds one of the frequent employment in our vocabulary of a few years ago of the prefix sub as subcrepitant, subacute, et cetera.

Young Diafoirus goes on to say that the pulse is repellant and even a little jumpy. The term employed is *caprisant*, meaning jumping like a goat. From this characteristic of the pulse they assumed that there was a change in temperature of the parenchyma of the spleen.

The patient here interrupted to say that Dr. Purgon held that it was his liver, not his spleen, that was affected. Diafoirus the Elder was quick to save his face by explaining that the word "parenchyma" covered the entire field, because of the close sympathy that existed between the organs through the intermediary of the vas breve, the pylorus, and the *meats cholédoques*, and he suddenly shifted the patient away from a field where he might be called upon to assert something precise by telling him what to eat, always an interesting subject for a hypochondriac. The ruse was successful.

The employment of the term "meats," the Latin *meatus*, is interesting. It is here used correctly as indicating a duct. With us the term is limited to the auditory meatus, where it still carries with it something of its original meaning of a channel, and to the external orifice of the urethra, where it certainly means a mouth. Holden, as late as 1878, speaks of the three meatus or passages of the nose.

The hypochondriac's brother, seeing his sad condition, comes to distract him and to wean him away from his medical infatuations, and in the course of his conversation says, as under such circumstances he would, many sharp things against the profession. He said that most of them were well read in the classics, which was true at that time in France; that they knew how to speak a pure Latin, that they could give the Greek name of all the diseases, define and classify them, but as for curing them they did not know anything at all. Furthermore, he said that the inner workings of our corporeal machine were mysteries which had never been penetrated, and that nature had placed before our eyes a veil too thick to be pierced. Many a rent has been made in that veil since Molière's day, and especially in our knowledge of that disease, aortic aneurysm, of which he so tragically perished.

The oath on receiving the Degree of M.D., the famous "juro," is also a precious addition to medical literature. It is a wonderful mixture of Latin, dog-Latin, Italian, French, and fanciful terms belonging to no language. The Hippocratic oath from long service has become somewhat tiresome. If the "juro" of Molière could be occasionally substituted we might go back to the precepts of our more ancient friend, with some hope of practising them.

After the applicant for a degree had sworn to give his prospective patients a clyster, then to bleed, and on top of that to purge, and if the malady turned out to be obstinate to rebleed, repurge, and reclysterize, and throughout to employ only remedies such as were authorized by the faculty, he was endued with the degree, together with full license to medicate, to purge, to bleed, to pierce, to trim, to cut, and to kill, and to practise this without fear of punishment throughout the whole world (*impune per totam terram*).

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1. The Evolution of Modern Medicine, by Sir Wm. Osler, 1921, p. 172.
2. Les Médecins au Temps de Moliere, par M. Raynaud, 1863, p. 166.

323 Geary Street.

Teutonic Versus Latin Culture.—Dr. Cruchet, editor of the *Journal de Médecine de Bordeaux*, contributes in the issue of January 25, 1922, xciv, 2, an editorial on an article which had recently appeared in the *Hamburger Nachrichten* on the above subject. This article bristles with personalities directed against Frenchmen eminent in all walks of life. The editor who has often himself pointed out some of the errors of the Teutonic viewpoint, naturally comes in for his share of abuse. Clemenceau is twitted of having a "Mongolian head" and similar personalities are indulged in. No doubt this article in the German periodical is motivated largely by the storm of hostile criticism directed against Teutonic culture during the years of war.

DICAL RECORD

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Original Articles.

THE PRESENT DAY TUBERCULOSIS PROBLEM IN EUROPE AND IN THE UNITED STATES.*

BY S. ADOLPHUS KNOPF, M.D. (Univ. N. Y. and Paris)

ATTENDING SPECIALIST, UNITED STATES WAR VETERAN HOSPITAL NO. 61.

(Approved for publication by the Surgeon-General U. S. P. H. S.)

THE tuberculosis problem of today in Europe outside of England, is appalling. The following interesting table,† compiled by Mr. J. G. Drolet, statistician of the New York Tuberculosis Association, giving the civilian deathrate from tuberculosis in large European cities and in the United States and England prior to, during, and after the war, speaks for itself:

For Each 10,000 *Inhabitants, Period* 1913-1920.

	Pre-War, 1913	Mid-War, 1917	After-War, 1920
New York (pulmonary tuberculosis)	171	164	109
London (pulmonary tuberculosis)....	130	171	103
Paris (pulmonary tuberculosis).....	328	295	227
Berlin (pulmonary tuberculosis).....	156	292	148
Vienna (all tuberculosis).....	302	425	405
Warsaw (all tuberculosis).....	306	840	338
Lodz (all tuberculosis).....	...	1,164	...
Cracow (all tuberculosis).....	487	908	...
Lwov (all tuberculosis).....	480	605	...
U. S. registration area (pulmonary)..	128	129	100
England and Wales (pulmonary).....	99	134	89

This table shows what the war *per se* has done to increase the tuberculosis deathrate and how disorganized government as in Vienna, Warsaw, Lodz, Cracow, and Lwov is an additional factor in the increase of the tuberculosis deathrate among the civilian population. How much Russia, which always had the highest tuberculosis deathrate of all European countries, has lost in men, women, and children from tuberculosis under the Soviet regime, will never be known. No statistics are available. Only through a wise reconstruction, political, economical, sanitary, and moral, is there hope for Russia to reduce its deathrate from tuberculosis and other social diseases.

In Serbia virtually nothing is done except some propaganda carried on by means of notices in public places, pamphlets, and moving pictures. Only two small hospitals and a few dispensaries for the care of the tuberculous exist. The situation, always bad, has become very desperate since 1914. The mortality is about 10 for every 1000 inhabitants. Of every hundred persons 20 are tainted, and 10 in 100 are ill with tuberculosis. In Roumania, in spite of its small urban population, the mortality from tuberculosis is 31 to 32 per 10,000 inhabitants; in some regions it reaches 50; where the mortality is the greatest, the housing conditions are the worst. Greece presents a little more hopeful outlook; it has established an educational center, one dispensary and a large hospital-sanatorium at Athens, and early cases are sent to climatic resorts.

Heroic efforts are being made by some of the European governments and by private philanthropy, including the vast sums of money contributed by the American people, to reduce the fearful morbidity and mortality from tuberculosis in the war-stricken countries of Europe. In France particularly a most energetic crusade has been carried on for the past few years; firstly, for the education of the rising generation of medical men in tuberculosis science; secondly, for the popular education of the masses in the prevention of tuberculosis; and lastly, for the hospitalization and cure of those afflicted with the disease. The valuable financial assistance contributed by the Rockefeller Foundation, has been in no small way responsible for the impetus to this magnificent work.

In Belgium an admirable governmental as well as private crusade against tuberculosis has been started, mainly under the leadership of Dr. Réné Sand, who came to the United States a few years ago to study our municipal methods of combating tuberculosis and visit a number of our sanatoria for the treatment of tuberculous patients. The Rockefeller Foundation has also generously aided the Belgian people in their combat of tuberculosis. Marine, alpine, and agricultural colonies are contemplated as means to combat the great tuberculosis morbidity and mortality. Tuberculosis is on the increase in Spain (Catalonia) and the housing problem is particularly acute. Italy is active and has recently sent a commission to the United States for study and cooperation in its work. A most active society has been formed under the name of "Italian National Association for War Consumptives." Dispensaries have been increased from twenty-six to more than 100. Since the war, an anti-tuberculosis cooperative society, with a capital of about ten million francs has been established. In the Netherlands an intense effort has been made to combat the appalling increase in tuberculosis that occurred during the war, when the deaths rose from 14 per 10,000 inhabitants in 1914 to 20.25 in 1918. The Scandinavian countries have a remarkably low death rate from tuberculosis compared with other portions of Europe.

Owing to the serious financial conditions in Germany, a number of semi-philanthropic sanatoria

* Read before the Section on Medicine of the N. Y. Academy of Medicine, Feb. 21, 1922.

†Bulletin of the N. Y. Tuberculosis Association, February, 1920.

(workingmen's insurance sanatoria) depending on the support of the public, had to be closed, and according to the *Zeitschrift für Tuberkulose* of January, 1922, one of the most important government institutions, the "Universitäts Polyklinik für Lungenleidende" in Berlin (University Polyclinic for the tuberculous) is to be closed on March 31st. A rather startling notice appeared in the *Zeitschrift* for December, 1921, wherein it was stated that the sanatorium at Loslau (Silesia) had to be closed because of political disturbances. Nevertheless, in Germany and particularly in Prussia they are now trying in some provinces to make it obligatory to report not only the deaths from tuberculosis but also all open cases of tuberculosis of the lungs and larynx. The tuberculosis deathrate, at least in Berlin, is now only half of what it was during mid-war. The education of the masses through lectures by various university professors is a feature of the anti-tuberculosis work in the new Germany. Similar efforts are being made in Austria where, as a result of malnutrition lasting for a number of years, the tuberculosis deathrate particularly among children, has surpassed all existing records. An interesting movement to combat tuberculosis is on foot in Austria. Dr. Tandler has suggested to the Landessanitätsrat that in order to combat syphilis, tuberculosis, and certain other degenerative diseases (cancer), marriage should be forbidden in families where the former two diseases exist and the latter has been observed for a number of generations.

The *Zeitschrift für Tuberkulose* reaches this country regularly again, but all the articles are in German while prior to the war contributions appeared in English, French, German, Swedish, and Dutch. On the other hand, the organ of the International Antituberculosis Association which appears monthly under the name of *Tuberculosis*, prints articles in English, French, and German. This periodical now makes its appearance regularly and Prof. Gotthold Pannwitz is the editor.

The January number contains an article on the subject of the new antituberculosis law, contemplated in the Reichstag, and suggests a union of all the tuberculous patients of the land so that they themselves may have something to say concerning the forthcoming legislation. The nucleus for such an organization is already established under the name of "Verband der Lungen-und Tuberkulose-Erkrankten Deutschlands" (Union of patients afflicted with tuberculosis of the lungs and other organs). The object of the association is set forth as follows:

1. The assurance of ample nourishment for the tuberculous.
2. The establishment of legal rights for sanatorium treatment.
3. The assurance of proper and ample housing conditions.
4. The establishment of special industries for the tuberculous.

Dr. Moses, a member of the Reichstag, who will bring the appeal for the tuberculous before the governmental authorities, is sending out the following inquiry in English, French, and German to the readers of "Tuberculosis:"

1. Do similar unions of tuberculous invalids exist in other countries?
2. How are they organized?
3. Does this movement of tuberculous invalids receive official support?
4. What is the attitude of the medical profession toward such an organization of the tuberculous?
5. What if any was the experience in soliciting voluntary public support, as for instance in the sale of tuberculosis seals?

Dr. Moses will be grateful for an early reply to these questions.

The very large and important International Tuberculosis Conference which was held in Paris a year and a half ago (October 17-21, 1920), to which nearly all the countries of Europe, except Russia and Germany, had sent delegates and at which the United States was also represented, proved a revival of the international interests in the struggle against tuberculosis.

Fortunately, in the United States the deathrate from tuberculosis has decreased in spite of war and a serious grippe epidemic. The tuberculosis problem of to-day in this country is a hopeful one and it is different from the problem which confronted us twenty-five years ago, or even fifteen years ago, when the active work of the National Tuberculosis Association was begun. The legislative, sanitary, medical, and social conditions have been vastly improved since then, and when one reads the favorable reports on the decrease in the tuberculosis deathrate, one is apt to think that we need no longer worry about the disease. In an admirable paper by Dr. Lee K. Frankel, Third Vice-President of the Metropolitan Life Insurance Co., read before the National Tuberculosis Association at its last year's meeting, the author states that 60,000 fewer deaths occurred in the United States Registration Area from pulmonary tuberculosis in 1919 than if the 1900 deathrate had prevailed.

If the encouraging decrease of 40 per cent. in the local deathrate should keep on, one might presume that in a decade or two we would have mastered this plague. Alas, our goal still seems to be far from us. There are still 500 victims every month, and to quote from "Better Times," New York's Welfare Magazine, of December: "Even more disturbing is the fact that the present Department of Health registration of known cases of pulmonary tuberculosis shows that 14,491 patients, or 53 per cent. of the total of 27,252 cases in the entire city on October 1, 1921, were not under medical care."

Efforts are of course constantly being made to get hold of these uncared-for cases, and it is to be hoped that the great number of patients without medical attendance will be materially decreased in the near future so that all tuberculous patients may be placed in a sanatorium or in a hospital, or else be under the care of a physician who will show them as nearly as possible how to obtain at home the same condition as in a sanatorium.

Besides the tuberculous among our civilian population, we have of course also a large number of tuberculous ex-soldiers and sailors. In comparison with other countries, both our allies and the central powers, particularly France and Italy, Austria and Germany, the number of our soldiers who contracted tuberculosis during, or later as a result of the war is indeed small. This fortunate circumstance is due to the care exercised by the draft boards and camp surgeons in eliminating the tuber-

culous or the strongly predisposed men who had been drafted. Nevertheless, an aggregate of 59,903 tuberculous ex-service men and women were given hospital care up to February 1, 1922. So far, the following government hospitals are functioning to take care of tuberculous ex-service men and women:

(DISTRICT No. 1)

U. S. P. H. S. Hospital, No. 36, Boston, Mass.; No. 41, New Haven, Conn. (also for surgical tuberculosis for this district and districts No. 2 and No. 3); No. 60, Oteen, N. C. (males and females).

N. H. D. V. S. Hospital, Togus, Me.; Rutland, Mass. (When opened.)

(DISTRICT No. 2)

U. S. P. H. S. Hospital, No. 60, Oteen, N. C. (males and females); No. 61, Fox Hills, N. Y. (observation only).

N. H. D. V. S. Hospital, Johnson City, Tenn.

(DISTRICT No. 3)

U. S. P. H. S. Hospital, No. 66, Ft. McHenry, Md. (observation only); No. 60, Oteen, N. C. (males and females).

N. H. D. V. S. Hospital, Johnson City, Tenn.

(DISTRICT No. 4)

U. S. P. H. S. Hospital, No. 32, Washington, D. C. (observation only); No. 56, Ft. McHenry, Md. (observation only); No. 29, Norfolk, Va. (observation only); No. 26, Greenville, S. C.; No. 60, Oteen, N. C. (males and females).

N. H. D. V. S. Hospital, Johnson City, Tenn.

(DISTRICT No. 5)

U. S. P. H. S. Hospital, No. 26, Greenville, S. C.; No. 60, Oteen, N. C. (male and female); No. 45, Biltmore, N. C. (surgical tuberculosis only for this district and districts No. 4 and No. 6); No. 48, Atlanta, Ga. (observation only); No. 63, Lake City, Fla.

N. H. D. V. S. Hospital, Johnson City, Tenn.

(DISTRICT No. 6)

U. S. P. H. S. Hospital, No. 27, Alexandria, La.; No. 60, Oteen, N. C. (females only); Algiers, La. (observation only); No. 26, Greenville, S. C.; Dawson Springs, Ky. (when opened).

U. S. Marine Hospital, No. 14, New Orleans, La. (observation only).

N. H. D. V. S. Hospital, Johnson City, Tenn.

(DISTRICT No. 7)

U. S. P. H. S. Hospital, No. 60, Oteen, N. C. (male and female); No. 69, Newport, Ky. (observation only).

U. S. Marine Hospital, No. 8, Evansville, Ind. (nontransferrable cases and for observation only).

U. S. P. H. S. Hospital, Dawson Springs, Ky. (when opened); No. 26, Greenville, S. C.

N. H. D. V. S. Hospital, Dayton, Ohio; Johnson City, Tenn.

(DISTRICT No. 8)

U. S. P. H. S. Hospital No. 30, Chicago, Ill. (observation only); No. 75, Maywood, Ill. (observation only); No. 60, Oteen, N. C. (females only); No. 65, St. Paul, Minn. (for observation only for patients residing in Northwestern Wisconsin); Dawson Springs, Ky. (when opened).

U. S. Marine Hospital, No. 8, Evansville, Ind. (for observation only for patients residing south of Springfield, Ill.); No. 18, St. Louis, Mo. (for observation only for patients residing south of Springfield, Ill.).

U. S. Army (Fitzsimmons) General Hospital, Denver, Col.

U. S. Naval Hospital, Ft. Lyons, Col.

(DISTRICT No. 9)

U. S. Marine Hospital, No. 18, St. Louis, Mo. (nontransferrable cases and observation only).

U. S. P. H. S. Hospital, No. 50, Prescott, Ariz.; No. 60, Oteen, N. C. (females only); No. 55, Ft. Bayard, N. M. (male and female); Dawson Springs, Ky. (when opened); Excelsior Springs, Mo. (when opened).

U. S. Naval Hospital, Ft. Lyons, Col.

U. S. Army (Fitzsimmons) General Hospital, Denver, Col.

(DISTRICT No. 10)

U. S. P. H. S. Hospital, No. 50, Prescott, Ariz.; No. 55, Ft. Bayard, N. M. (male and female); No. 64, Camp Kearney, Cal. (patients from Montana only, but only until Walla Walla opens); Walla Walla, Wash. (when opened) (patients from Montana only); No. 55, St. Paul, Minn. (observation only); No. 68, Minneapolis, Minn. (observation only); No. 72, Helena, Mont. (observation only).

N. H. D. V. S. Hospital, Hot Springs, S. Dak.

(DISTRICT No. 11)

U. S. P. H. S. Hospital, No. 55, Ft. Bayard, N. M. (male and female); No. 50, Prescott, Ariz.

U. S. Naval Hospital, Ft. Lyons, Col.

U. S. Army (Fitzsimmons) General Hospital, Denver, Col.

(DISTRICT No. 12)

U. S. P. H. S. Hospital, No. 51, Tucson, Ariz.; No. 50, Prescott, Ariz.; No. 24, Palo Alto, Cal.

U. S. Naval Hospital, Ft. Lyons, Col.

U. S. Army (Fitzsimmons) General Hospital, Denver, Col.

N. H. D. V. S. Hospital, Sawtelle, Cal.

(DISTRICT No. 13)

U. S. P. H. S. Hospital, No. 59, Tacoma, Wash.; No. 52, Boise, Idaho (observation only); Walla Walla, Wash. (when opened); No. 44, Camp Kearney, Cal. (only until Walla Walla opens); No. 50, Prescott, Ariz.; (only until Walla Walla opens). No. 55, Fort Bayard, N. M. (females only).

U. S. Naval Hospital, Ft. Lyons, Col.

U. S. Army (Fitzsimmons) General Hospital, Denver, Col.

(DISTRICT No. 14)

U. S. P. H. S. Hospital, No. 50 Prescott, Ariz.; Excelsior Springs, Mo. (when opened) (patients from Arkansas and eastern Oklahoma only); No. 55, Fort Bayard, N. M.

U. S. Army Station Hospital, Ft. Sam Houston, San Antonio, Tex.

Additional provision for a probable increase in the number of tuberculous ex-soldiers is contemplated.

In answer to occasional public criticism of some of the tuberculosis hospitals, it must be remembered that several of these hospitals had been hastily constructed by the medical department of the U. S. Army because of urgent need and with no thought that they should be permanently occupied by the chronically ill with tuberculosis. As to the medical and general care bestowed upon our tuberculous ex-service men and women, I feel that any criticism has little or no foundation. The officers and nurses entrusted with the care of these men have nearly all seen overseas service, are experienced in the special care of the tuberculous, and devoted to their tasks.

I have visited some of the U. S. Government hospitals in the West and can speak from a lengthy experience in one of the largest of our Eastern institutions. The patients are treated kindly and considerately and many have more freedom regarding their movements than in civilian tuberculosis hospitals. This might be deplored, but we must not forget that the psychology of the tuberculous ex-soldier is somewhat different from that of the civilian patient. Nevertheless, as a whole the discipline is excellent. The morale is good and everything possible is done to obtain an arrest of the disease or a cure in favorable cases, and whenever possible an economic cure is striven for in the moderately advanced case. By an economic cure must be

understood a condition which will enable the tuberculous patient to work a few hours daily in sanitary environments at his trade or calling, or at a job for which he has been prepared by vocational training, without fear of a relapse. The seemingly hopeless are made as comfortable as lies in human power to make them. The American people may rest assured that the United States Government is doing its utmost for all the war wounded and sick and that the tuberculous among them are receiving as good, and in many instances better, care than municipal or even private institutions can offer.

To return again to our civilian problems. In a recent appeal to the American people on behalf of the National, the New York City, and other local Tuberculosis Associations, for financial assistance to the antituberculosis cause by means of the sale of the Christmas seals, I emphasized the following facts: As is well known by all students of tuberculosis, the disease, as a rule, does not begin in adult life. It is most frequently contracted in childhood. While it may always remain a latent infection and never develop into a disease, where there is privation and want, underfeeding, insufficient clothing, and overcrowding, the infected child is bound to develop tuberculosis. Malnutrition among children whose parents are in poor or even moderate circumstances, owing to hard times and winter weather, is more to be feared this year than ever before. Many an adult, predisposed to tuberculosis, retains his good health in prosperous times because he can get good, nutritious food and have a comfortable home. It is different now with the vast army of unemployed, many of whom not only live less comfortably and less hygienically, but must content themselves with insufficient food. Add to this their natural anxiety about the future, and I am sure that unless the situation changes soon we shall have a great many tuberculous adults.

It was gratifying, after my attempt to arouse public interest in the antituberculosis campaign, to see the daily papers express a realization of the seriousness of the situation. In an editorial in the New York *World*, which appeared a few weeks ago, some very good advice for employer and employee was given in the following words: "With an army of workers idle and reduced to less hygienic living conditions, the development of tuberculosis will be encouraged." That is something for employers and restless employees to bear in mind. This admirable editorial, referring to my above mentioned plea, says: "It is an unfavorable time to go on strike without sufficient cause and an equally unpropitious time to enforce wage or working conditions likely to precipitate a strike. The fact that many employees are out of work ought to induce caution both in the counting room and at union headquarters on economic grounds alone. If these are not adequate the question of impaired health in the worker should turn the scale toward conservatism. It is not a time for letting go but for holding on."

Let us all do our share in solving this particular problem. Let us come to the rescue of those thousands of children and the thousands of men and women who are in danger of becoming tuberculous. It will be a glorious preventive work, and if we can add to this the hygienic care, supervision, and frequent cures or at least arrest of the disease in the uncared-for cases, we will accomplish great things. When one reflects that the above-given figures (27,252), uncared-for cases only apply to the city of Greater New York, what must be the number throughout the United States! From the foregoing we see the necessity of keeping up the slogan "The fight against tuberculosis must still be on."

Besides the antituberculosis campaign so admirably conducted by the National, State, and City Tuberculosis Associations for the education of the public in the prevention of tuberculosis, we must pay more attention to this antituberculosis education in elementary schools, high schools, and colleges. In elementary and high schools, particularly in the latter for girls, there is too much attention paid to the development of the intellectual faculties and too little to the physical, to the detriment of the physique of the future mothers of the country. Not only for the growing child and the adolescent, but for all individuals, "the inordinate stress, physical and mental," should be avoided if we wish to conquer tuberculosis as a disease of the masses. There should be periodical physical examinations of all pupils, no matter whether in public, private, or parochial schools or in colleges. I hope the time will come when the American people as a whole will realize that periodical examinations by their family physicians or some authorized medical examining board, perhaps twice yearly, for the purpose of determining their physical status and the possible checking of an insidious disease, are to their physical, mental, and financial advantage.

In an article, published last August by the Chief of the Tuberculosis Section of the U. S. Public Health Service, entitled "Outline of a Campaign for the Control of Tuberculosis"* this universal examination of adults is strongly endorsed in the following list of proposed activities: "Popularize the practice and form the habit of physical examination among the school children and men and women of every class and age. The routine periodical physical examinations by the Government of all Federal employees; officers and enlisted men of the Army, Navy and Coast Guard; inmates of Federal prisons; policy holders of the Bureau of War Risk Insurance; merchant seamen and other potential beneficiaries of the Public Health Service; and lastly, more efficient examination of immigrants."

There are perhaps now a sufficient number of sanatoria, special hospitals, and dispensaries in most parts of the United States; but in order to solve the problem thoroughly the preventive side must not be neglected, but go hand in hand with all the curative measures. Thus, in my humble opinion, we need maternity sanatoria for tuberculous mothers and more preventoria for predisposed infants and small children. Preventoria are urgently needed and should be established not only by private initiative but also by public authorities. And last but not least, we need more workshops for the partially recovered tuberculous patients or those entirely cured but untrained in any work and not fit to take up a vocation demanding great physical strain. Two such model institutions exist now in the city of New York; one is the Altro Manufacturing Co., 1157 Southern Boulevard. Patients above referred to as economically cured and

*F. C. Smith, *Journal of the Outdoor Life*, August, 1921.

with previous experience in garment making can find remunerative employment there for as many hours as their constitution will permit. At the Reco Manufacturing Co., located at 460 Pierce Avenue, Long Island City, patients are taught watch making, jewelry manufacturing, and cabinet making to enable them to earn a good living after leaving the Reco work shops.

Concerning the care of our recovered tuberculous ex-service men, I quote again from the article just referred to, as follows: "The Federal Board of Vocational Training has already an arrangement with the National Tuberculosis Association whereby a study will be made for a term of years through funds equally contributed by both organizations, to determine vocations suitable for the tuberculous. When we have at least reconciled ourselves to the knowledge that we must live with tuberculosis, that we cannot get away from it, nor isolate the tuberculous, we shall be prepared to entertain many measures not heretofore contemplated, whereby treatment will be carried out in the homes with the aid of visiting nurses, public dispensaries and social vocational workers."

May I conclude this brief survey of the present status of the tuberculosis problem in our own and some of the European countries by repeating a motto with which I headed a little essay on the subject, "Tuberculosis as a Disease of the Masses and How to Combat it." The essay was published nearly 25 years ago and the motto referred to reads as follows: "To combat tuberculosis as a disease of the masses successfully, requires the combined action of a wise government, well trained physicians, large hearted philanthropists, and an intelligent people." This motto is still applicable to present day conditions.

16 West Ninety-fifth Street.

ARSENICAL PIGMENTATION OF THE SKIN.

By DOUGLASS W. MONTGOMERY, M.D.,

AND

GEORGE D. CULVER, M.D.,

SAN FRANCISCO, CAL.

Occasionally arsenic, when taken internally, gives rise to pigmentation of the skin. This is not a deposition of the metal, as in the discoloration produced by taking the salts of silver, but is due to stimulation of the pigment-producing function of the cutaneous cells. It is therefore not permanent, as the silver discoloration is, but slowly fades out on discontinuing the drug.

Arsenical pigmentation is interesting, not alone because of the disfigurement it occasions, but also for what it may simulate, as it may be mistaken for a cachectic pigmentation such as arises in tuberculosis or it may mimic Addison's disease.

It has yet another interest, and this is the principal one to a physician, as it shows conclusively the stimulating effect of this drug on the life processes of the epithelial cell. We shall speak further of this later.

Arsenical pigmentation is rarely seen by us, because it usually requires large doses to produce it, and although we frequently administer arsenic, our dosage, excepting as arsphenamine, is almost invariably low. And arsphenamine is peculiar among arsenical preparations in that it does not give rise to pigmentations; at least we have never seen or heard of its doing so.

Arsenic is one of the oldest drugs, and it undoubtedly is more used now than ever before, if we include, as we should, its organic compounds such as arsphenamine and the cacodylates. There is no question of the influence arsenic exerts on the body. Its very name, arsenic, or "the powerful," indicates what our forefathers thought of it, for although the Greek word "arsen" may be translated as the Latin "mas" or "masculus," it likewise also means "fortis" (strong), and "strenuus" (energetic), and it is this latter signification that probably prevailed. That the ancients were aware of its "strenuous" nature when administered with a free hand is shown by the cheerful use they made of it in ridding themselves of personal rulers. Mahaffy relates that a member of the Royal Egyptian household one day overheard Ptolemy V Epiphanes, inverting Alexander the Great's jest about his friend's money being practically his own. He made haste to remove the jester by a good dose of arsenic, which goes to show that there is nothing quite so trying on friendship as a difference in taste in the matter of jokes.

Tre Relative Frequency of this Bye-Effect.—The pigmentation of chronic arsenical poisoning is almost as frequent as conjunctivitis or congestion of the hands and feet, and much more so than keratodermia of the palms and soles.[1] It must be remembered, however, that all of these bye-effects are rare except when the drug is given in large dosage. As one might expect, the appearance of the discoloration varies in different cases in its topographical distribution, in the size of the patches and also in its intensity. Brocq, for instance, in giving arsenic for acne in young girls, warns the parents that brown patches may appear on the face, and as brunettes are more susceptible to this manifestation than blondes, and as he in France probably sees more brunettes than we do, this may be a wise precaution. Furthermore, he may give large doses in order to get the effect of the arsenic as a laxative, which we never do in acne.

There may be only a few disseminated yellowish-brown patches or they may be of all grades between this and a generalized continuous melanodermia simulating Addison's disease, and only distinguishable from it by the absence of general constitutional symptoms and the lack of pigmentation of the mucous membranes.

In one of our cases a patient who had been under our care for lues came in one day telling us that his abdomen was growing unaccountably dirty looking, and that he was sure it was not due to lack of bathing. As we knew that there was a suspicion in his case that he was suffering from an abdominal tumor, we at first suspected that the discoloration might be owing to involvement of the sympathetic nerves in some pathological process, but the reticulated appearance started an inquiry in regard to arsenic, and we learned that he was taking heavy doses of the cacodylate of iron. He also had some pigmentation of the forehead and temples.

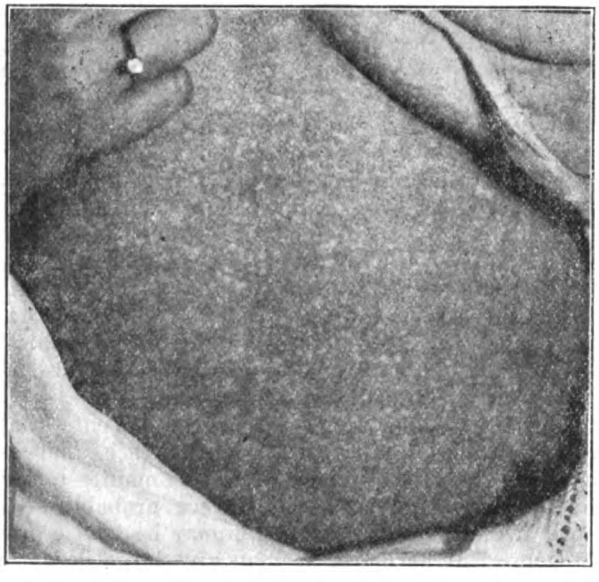
In one of Borsellini's cases the resemblance to the melanotic syphilitic collar was exact.

It is well also to remember that both the syphi-

litic melanotic collar and arsenical pigmentation of the neck are apt to appear more frequently in women than in men. Why the luetic collar should show this preference is not known. The more frequent occurrence of arsenical melanodermia in women is probably due to their more frequent uncontrolled use of the drug taken for its cosmetic effect.

In a woman recently seen by us the dirty brown pigmentation of the neck and upper part of the chest at first gave rise to the idea that it might be cachectic and might furnish a clue to the cause of the rosacea for which she consulted us. On examining the abdomen, however, a typical reticulated arsenical melanodermia was seen, and it then transpired that the discoloration had appeared while taking arsenic "to clear the complexion."

As before referred to, it usually requires high doses and long continued use to produce this pigmentation. Pusey, however, has spoken of a patient, seventy years of age, who developed an intense



Reticulated arsenical melanodermia produced by taking ten drops of Fowler's solution for three weeks. In describing this kind of pigmentation Sequeira very aptly calls it "dappled."

pigmentation after taking five hundred minims of Fowler's solution during a month.[2] This was just about sixteen minims a day or six minims a dose —not an excessive quantity. A patient of ours, the young woman already referred to, said that she took ten drops three times a day for three weeks. The pigmentation was, as shown in the photograph, intense. As before remarked, arsenical pigmentation is not a deposit of metal as in argyria, but a stimulation of the pigment-producing cells, and this is the reason why brunettes are more affiicted than blondes; their pigment-producing cells are more easily stimulated in this direction.

Arsenic As a Cell Stimulant.—That arsenic should so stimulate the life processes of the cell is most interesting, and this cell stimulation by arsenic indicates why this remedy has held its place so long as an independent tonic, and also as an adjunct to other tonics and medicaments.

For instance, we all are aware how a patient will brighten up under the influence of moderate doses of arsphenamine, and how it aids in the therapeutic effect of mercury. It may be recalled that before the discovery of arsphenamine it was often found that when mercury failed in its effect, a dose of atoxyl would so change conditions as to secure success. Also the association of small doses of arsenic with iron in the treatment of anæmia is a well known and appreciated therapeutic measure. This stimulation of metabolism is the probable reason for the excellent effect of arsenic in the status seborrhœicus, in which the fat metabolism of the epithelial cells is undoubtedly faulty. The administration of arsenic acelerates the sluggish chemical processes, and secures the oxidation of the superfluous fat.

The mechanism of this stimulation is not known, but it may be due to the accelerating action of the metal on the oxidizing catalysers contained in the cell, similar to the acceleration of the oxidizing catalysers in the nitroso-monas in the presence of iron and manganese, as explained by Osborn.[3]

This view of the action of arsenic particularly commends itself as offering an explanation of the marked effects produced by small doses.

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2. American Dermatological Association, Philadelphia, June, 1909.
3. Osborn, H. F.: The Origin and Evolution of Life on the Earth, *The Scientific Monthly*, September, 1915, page 290.

323 Geary Street.

DISLOCATION OF THE SEMILUNAR BONE OF THE WRIST.

WITH REPORT OF A CASE.

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On March 5, 1921, a painter, aged thirty-two, came to the Mount Sinai Hospital Dispensary stating that several hours previously he had fallen a distance of several feet from a ladder and struck his left hand. He did not know what part of his hand he had hit or its position when he landed. There was immediate pain and loss of function; the latter due in part to pain and in part to mechanical inability to extend the fingers. The wrist was very much swollen, the enlargement being most marked in the anteroposterior diameter. The swelling precluded accurate palpation of the bones. A diagnosis of probable fracture of the radius and the ulna at the wrist was made, a temporary anterior padded splint was applied and the patient sent for an *x*-ray examination.

As seen in Fig. 1, the bones of the forearm are intact, but there is a dislocation of the semilunar, which is rotated through an arc of 90 degrees so that its inferior articular surface looks forward. The rest of the carpus is normal. On March 8 an attempt at reduction was made; this was unsuccessful, and roentgenograms showed the position of the semilunar practically unchanged. On March 12, one week after the injury, a second attempt at reduction was made. Traction was made on the hand while the wrist was strongly hyperextended, and at the same time the thumbs made pressure on the semilunar. The bone was felt to slip back and after it was in position could distinctly be felt to wobble. The hand was fixed in a position of moderate flexion by an anterior molded plaster splint. The pain, which had been constant, severe and associated with formication in the distribution of the median nerve, completely disappeared when the

reduction was made. Reontgenograms, Fig. 2, taken at this time, show the semilunar in its normal situation.

Examination a week later with special attention to neurological changes failed to show any alterations in the distribution of either the median or ulnar nerves. The patient was then referred to the department of physicotherapy for treatment.

FIG. 1.—Lateral view showing rotation of the semilunar bone to 90 deg.; the concave articular surface looks forward instead of downward. The anteroposterior view shows the dislocation and rotation of the semilunar bone.

Examination one month after reduction showed no nerve involvement, voluntary motion at the wrist was limited to flexion and ulnar flexion of 5 degrees. There was limited flexion and extension of the fingers. In July, four months after the injury, the range of motion was complete in all directions, but there was some weakness at the wrist. In December the only objective finding was a slight thickening of the wrist, and subjectively the hand tired more readily than normally.

While dislocation of the semilunar bone ranks second in point of frequency among injuries to the carpus, fracture of the scaphoid holding first place, it is not a common lesion. In reporting three cases in 1907 Poulsen,[39] adding the cases collected by him to those previously collected by Eigenbrodt in 1901 was able to list 75 instances of dislocation of the semilunar bone. Of these 53 were simple dislocations, the remainder being associated with injuries to the neighboring bones. From 1905 up to the present time, exclusive of the cases reported by Poulsen, I have collected 84 instances of dislocation of the semilunar bone, 29 of which were uncomplicated. There were three posterior dislocations,[14, 20, 48] in one case the bone was fractured as well as dislocated,[14] one patient had previously dislocated the opposite semilunar, and in two instances there was a bilateral dislocation.[2, 19] Forty-eight cases were complicated by injuries to one or more of the neighboring bones; of these the scaphoid was involved 37 times; in 7 instances it was not stated whether or not there were concomitant injuries.

Etiology and Mechanism.—Because it is unusual for a patient to remember the exact position of his hand and arm at the time of receiving his injury, we are not aided by the history in our search for the mechanism inducing this type of dislocation. The usual result from a fall on the outstretched hand is a Colles fracture or, more rarely, a fracture of the scaphoid. Destot[8] and Lilienfeld,[30] from the experimental side, have succeeded in reproducing typical dislocations of the semilunar in the cadaver by adding ulnar flexion to hyperextension. It is very probable that this position obtains clinically; and this alone or in conjunction with the peculiar "make up" of the patient's bones and ligaments, as Murphy[35] claims, is responsible for the dislocation rather than a scaphoid or Colles fracture.

To appreciate the mechanism of dislocations forward of the semilunar bone we must remember that motion at the wrist is made up not only of movements between the carpals and the bones of the forearm, but also between the proximal and distal rows of carpals. The scaphoid, spanning both rows (which is one factor in the etiology of fractures of that bone), moves with each row. Of the ligaments attached to the semilunar, the one on its anterior aspect connecting it to the radius is the strongest and most important in determining the position of the bone when dislocated. Thebault[43] points out that the larger portion of the body of the semilunar lies anteriorly, and that while it covers rather completely the anterior portion of the head of the os magnum, it leaves the posterior aspect poorly covered.

By some authors the mechanism of the dislocation has been compared to the expression of a cherry pit between the fingers, the pit being the semilunar bone which is compressed between the os magnum below and the radius above, and the propelling force the impact from the fall. The probabilities are that the dislocation is brought about as follows: The age and sex of the individual and shape of the bone are contributing factors. It is very much more frequent in the second and third decades. It is more common in males. And as Delbet[9] claims it seems to occur more often in supple hands, and where the concavity of the semilunar facing the os magnum is shallow and the posterior angle poorly developed. In hyperextension at the wrist, as obtains in falls on the outstretched hand, the head of the os magnum moves behind the semilunar. If the force continue the poorly developed anterior ligament from the semilunar to the os magnum ruptures, and the head of the os magnum, passing further behind the semilunar, acts as a lever to force it forward. The ligament passing from the posterior aspect of the semilunar to the scaphoid facet of the radius gives way and the semilunar dislocates forward. Still

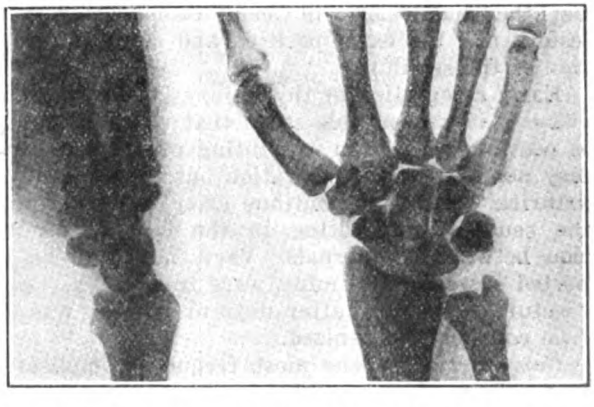

FIG. 2.—Lateral and anteroposterior views after reduction

held by the anterior ligament attaching it to the radius, which acts as a hinge, it rotates. Rotation cannot go beyond 180° unless this last ligament is torn, when complete rotation up to 360° is possible. The bone has been reported driven through

the flexor tendons and lying on the forearm beneath the skin.

Nomenclature. — Whether this type of injury should be known as forward dislocation of the semilunar, backward dislocation of the os magnum, or mediocarpal dislocations, depends on whether the lesion is viewed from the standpoint of the mechanism or the end stage. With a complete dislocation of the semilunar the attention does and should focus on that bone. Its absence from its usual situation and presence in an unusual one causes the symptoms. The alignment of the third metacarpal os magnum and radius is intact, there is no protuberance on the dorsum of the hand either clinically or by *x*-ray. It seems, therefore, that the term forward dislocation of the semilunar bone should be retained, certainly for the cases of isolated and complete lesions of that bone. Where the dislocation is incomplete, and there are concomitant dislocations of surrounding bones, the broader term, mediocarpal dislocation, is applicable.

Symptoms.—The diagnosis of dislocated semilunar should suggest istelf when, with a history of a fall on the outstretched hand, or a corresponding injury whereby the hand is forcibly hyperflexed, examination fails to reveal an injury to the radius or ulna. If in addition there is a globular swelling anteriorly distal to the radius, *x*-ray will but serve to confirm the diagnosis. The wrist is thickened in an anteroposterior plane, but has not the "Silver fork" deformity. There is apparent and actual shortening of the hand as measured from the base of the third metacarpal to the radius. The fingers are held in semiflexion from the shortening of the flexor tendons due to the projection forward of the semilunar. The pain accompanying this lesion is usually more severe than that of other injuries about the wrist. This pain, due to pressure on the median, or more rarely the ulnar nerve, is constant and persists until reduction is made, or pressure relieved by some other means, when it ceases as a rule immediately. At times the pain will have the characteristic distribution of the nerve pressed upon and be associated with objective sensory changes. All motion is limited by pain, extension of the wrist and of the fingers is hindered mechanically as well. The *x*-ray, aside from confirming the diagnosis, will show complicating bone lesions and the exact position and degree of rotation of the semilunar.

Early recognition of this injury is important because it is only at this stage that closed reduction is possible. Delay in instituting proper treatment may not only lead to operation but may initiate an arthritis which will continue after the excision of the semilunar, resulting in the loss of all motion between the carpals. Very many of the reported cases, as was mine, were regarded as Colles fractures, and only after days or months was the true condition recognized.

Complications.—The most frequent complication is fracture of the scaphoid; this occurred either alone or with other bone injuries 37 times in the 84 cases. The bone next most frequently injured is the radius. Fractures of the styloid process of the ulna and fractures or dislocations of the os magnum, cuneiform and unciform have been reported.

The nerve symptoms as a rule are relieved by reduction or excision of the semilunar. Occasionally formication associated with diminished sensation in the distribution of the median nerve remains for some time. I found no instance reported of motor changes attributed to a nerve lesion.

Treatment.—Factors which enter into a decision as to the proper treatment of dislocation of the semilunar bone are (1) the time elapsed since the injury, (2) the complicating bony injuries, and (3) perhaps, the degree of rotation. In recent years, due probably to the earlier diagnosis, there are more reductions than excisions. Destot[4], one of the early advocates of closed reduction, reports one instance where 25 days after the injury he reduced the dislocation with excellent result. This is the longest lapse of time after the injury where reduction has been successful. Excision after 11 months has given a perfect result (Chaput). Injuries to the neighboring bones may make it inadvisable to attempt or impossible to perform a reduction. Where there is a pronounced nerve involvement the added trauma inflicted by reduction may be a contraindication to the attempt. At one time rotation of the bone of more than 45° was considered an obstacle, but there have been many reductions where 90° rotation existed; Golden[2] reports reduction where there was rotation of 225°. Open reduction was performed four times with good results in three instances. The additional manipulations necessary to replace the bone over that needed for excision, and the lack of symptoms incident solely on its removal, would seem to contraindicate this treatment. There is practically no loss of strength in the hand after the bone has been excised.

There were 30 closed reductions (10 uncomplicated dislocations) with 20 good results, 6 poor, and in 4 the result was not stated. In 34 cases the bone was excised (8 uncomplicated) with 18 good results, 7 poor, and 8 not stated. Four bones were reduced by the open method. Physicotherapy was used as the sole treatment in 5 cases and in 11 instances the treatment was not given. Earlier recognition of the lesion with attempts at reduction, where not contraindicated, would improve the figures for this type of treatment, which even now gives slightly better results than excision. Of course, the poor results obtained by excision are in part due to the late stage at which the lesion is recognized.

Reduction is best performed under general anesthesia. Traction is made on the hand while counter traction is provided by an assistant pulling on the forearm. The wrist is first hyperextended and then sharply flexed while pressure is made with the thumbs over the prominent semilunar on the palmar aspect. The hand is put on a short palmar splint in slight flexion. Passive motion may be begun on the fifth day.

For excision the approach is from the anterior surface, the incision being made over the projecting semilunar. The flexor tendons and the median nerve are retracted inward and outward, the bone is readily exposed. In most instances it cannot be removed until its palmar ligamentous attachment to the radius has been divided. Where the scaphoid

ctured and one fragment dislocated with the
nar, the attached fragment should also be
d.

clusions. — 1. Anterior dislocation of the
nar bone is the best term for isolated, com-
forward displacements of that bone.

n over 50 per cent of cases it is associated
esions of the neighboring bones.

losed reduction is the treatment of choice in
cases, and may succeed even three weeks after
jury.

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178 East Seventieth Street.

A CASE OF MULTIPLE OSTEOMYELITIS.

FROM THE SURGICAL DEPARTMENT OF THE NEW HAVEN DISPENSARY.

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MULTIPLE Osteomyelitis is a disease often obscure in etiology and presenting many difficult problems in its course and treatment. This case is reported with a view of stimulating discussion as to the remedial measures to be carried out in such a chronic condition and because of its comparative infrequency.

CASE REPORT.—The patient is a boy, aged fifteen, born in Boston, the second of three boys whose parents were strong and healthy with no history of tuberculosis, syphilis, or cancer. The past history includes pneumonia at three months, suppurative cervical adenitis at two years with sinus persisting one year, scarlatina at three years. The tonsils were removed at the age of three years. Pneumonia at the age of nine years, followed by a "running ear," completes the past history.

The onset of the present illness dates back to December 23, 1917, when the patient was suddenly attacked with pain and swelling in the left ankle followed in a few days by a similar condition in the hips and knees until in about a week's time almost every joint in the body was involved, including the veretebral column, particularly the cervical region. The pain and swelling would leave one joint only to appear in another as in acute rheumatism. These symptoms were accompanied by high fever and sweating and later on delirium. The pain was so severe that the weight of the bed clothes could not be tolerated. The swelling in the left hip joint persisted and gradually became worse; that in the left knee and ankle remained also, but there was no pain or tenderness. During this period of six weeks the patient lost considerable weight. He received anti-rheumatic treatment, but because of the continued swelling, pain, and tenseness over the head of the left femur a consultation was held and he was sent to the Boston Homeopathic Hospital, where he was admitted February 7, 1918.

The hospital records show that on admission the left knee was markedly swollen, but was not tender to touch or painful on motion. The left hip was very tender to touch, painful on motion, quite swollen, and the skin over it was tense and glossy. Except for some tenderness in the right ankle the other joints were about normal. On March 16, 1918, incision, drainage, and curettement of the left femur at the greater trochanter were performed after a consultation in which amputation of the limb was considered, but not adopted because of the location of the lesion.

March 27, 1918.—The left femur and right tibia were curetted and small sequestra removed from each. The femur was found to be honeycombed. Both wounds continued discharging, and on January 18, 1919, the sinus of the left femur was enlarged to provide more adequate drainage. The drainage from the tibia and femur was quite free until January 31, 1919, when it was necessary to enlarge both wounds, which were then irrigated with Dakin's solution. The patient had suddenly developed pain in the left chest anteriorly, and on January 31, 1919, the fifth rib on the left side was found to be necrotic for three inches and that portion was removed. The wound gradually healed up without much drainage. On August 23, 1919, an incision was made over the right biceps, sequestra were removed, and the bone chiseled out.

October 28, 1919.—The patient was discharged with

the sinuses of the left femur and right tibia draining freely. From October 28, 1919, to January 4, 1920, he remained at home attended by a visiting nurse, who performed the dressings every other day.

On June 4, 1920, the patient was admitted to the New Haven Hospital for observation and treatment, the family having moved to New Haven. At the time of admission to the hospital he was quite deaf, a condition which had been present since March, 1920. The sinuses of the left femur and right tibia were still draining freely.

On August 6, 1920, the sinus of the left femur was again curetted and drained.

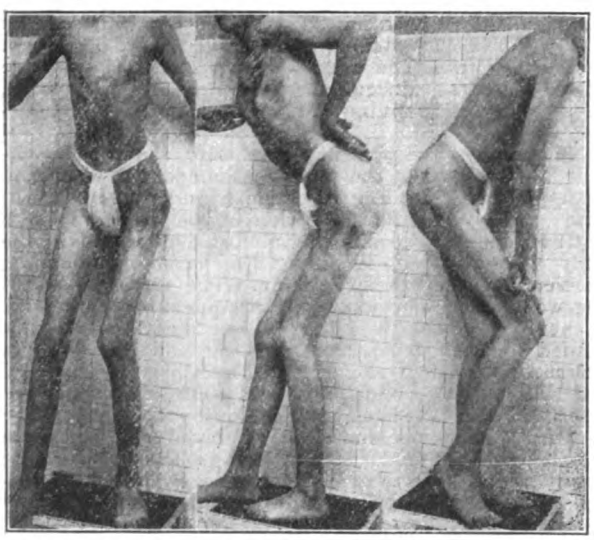
July 15, 1920.—An *x*-ray picture of the mastoid regions showed the left mastoid cells almost obliterated. On the right side a somewhat similar condition was observed. A diagnosis of chronic mastoiditis was made at this time, but no indication was found for operation.

On September 13, 1920, signs of pus in the region of the right hip developed and a superficial abscess was opened. A similar condition existing on the left side was likewise treated with incision and drainage.

January 7, 1921.—The old incision over the right tibia near the ankle was enlarged, the bone chiseled out, and packed with iodoform gauze.

January 13, 1921.—Two impacted molar teeth were removed because of swelling and pain in the jaw.

The patient was discharged from the New Haven



From photographs showing the location of the various incisions.

Hospital February 22, 1921, and since then has been coming to the Dispensary for biweekly dressings.

About September 1, 1921, a large superficial abscess was opened in the right upper forearm on the posterior aspect. No involvement of bone was present in this situation.

On November 11, 1921, a superficial abscess over the left sixth and seventh ribs, posteriorly, was opened, and from this a culture and vaccine were made. There was no involvement of the ribs.

At the present time the right tibia, left femur, and abscess on the back are draining freely; the other lesions are entirely healed except the one on the right forearm.

The roentgenograms taken at the New Haven Hospital present the following picture:

1. Head of left femur is smaller than normal and shows considerable decreased density. The acetabular cavity is poorly outlined and decreased in density. Surrounding the head of the femur, rather loosely, is a definite line of density, probably calcium deposit in the synovial membrane. Cortex gives impression of being thickened somewhat. There is definite mottling.

2. Lower end of tibia enlarged. It shows definite periosteal and osteomyelitic changes.

The blood examination showed a white count of 9,500; polys, 70 per cent.; L. M., 5 per cent.; S. M., 25 per cent.; H. B. G., 75 per cent.; R. B. C., 4,500,000.

The Wassermann reaction was negative.

Culture of pus from the sinuses at the time of operation showed *Staphylococcus aureus* in every instance with one exception, when it was accompanied by a nonhemolytic streptococcus. Autopsy of guinea pig inoculated with pus showed no signs of tuberculosis.

Decalcified bone taken from the lesions presented no signs of tuberculosis or syphilis on pathological examination.

Further treatment of this case has included a course of vaccine therapy instituted August 15, 1921. The results of this treatment were not very satisfactory, although much was hoped for because of good results reported by several French surgeons. A fresh vaccine has been made from a recent abscess, November 21, 1921, and the patient is now receiving injections every fourth or fifth day. This will continue over a long period in the hopes of increasing his resistance and preventing further extension of the infection.

Bacteriologically and pathologically this is a clear case of infectious osteomyelitis with the *Staphylococcus pyogenes aureus* as the offending organism. Clinically, the case is not so clear cut because of the history of acute rheumatic fever at the onset and the absence of any trauma. The multiplicity of the lesions makes it unusual clinically. Whether the condition can be explained by considering acute articular rheumatism as the predisposing factor in producing a lowered resistance in the body and hence the resultant osteomyelitis remains an open question. The possibility of infection secondary to an otitis deserves some consideration although no record of a case of this nature has been found in the literature of the past 15 years.

The photographs presented show very clearly the patient's present condition and the location of the numerous incisions.

50 SHELTON AVENUE.

CRITIQUE OF THE MODERN ROENTGEN THERAPY IN CANCER.

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ROENTGEN radiation is pretty well recognized at present as an indispensable therapeutic agent. Especially is this true since the modern technique has brought about a better understanding of its physical and biological properties. On account of this the application of radium and *x*-ray has experienced marked advances and given rise to a decided progress in the treatment of malignant diseases. The invention of scientific devices for the accurate measurement of the quality and quantity of the ray at a definite depth, as well as on the surface of the skin, has created our present modern technique. By means of the Iontoquantimeter of Szillard and the electroscope of Wulff, it is possible at present to state definitely what amount of radiation is administered at the surface and what percentage reaches the deeper tissues. Furthermore, with this technique either a physiologically stimulating or a knock-out dose to a tumor 8 or 10 cm. deep can be determined. These scientific attainments have necessarily called for the construction of more powerful apparatus to deliver higher intensities, and with it high voltage tubes to accept a high tension current of 200,000 volts and at present even 300,000.

My own personal experience with the newer methods of Roentgen therapy dates back now 18

months, and it is a great satisfaction to state that there is an earnest desire on the part of every cancer therapist to work with intensive radiation. To illustrate the newer technique let me point out that it requires approximately 5 to 6 hours of intensive radiation to obtain one-half of a cancer dose to a tumor 10 cm. under the surface of the skin, and this with an intensity of 200,000 volts, a filter 0.5 mm. of copper, a large portal of entry, and a distance of 60 cm. from the target of the tube to the skin.

The size of the portal of entry is of utmost importance; for instance, with a surface area of 1.5 by 2 cm. a tissue situated 10 cm. under the skin receives 9 per cent. of a surface dose, whilst with a portal of entry 10 by 15 cm., the depth dose is 35 per cent. Therefore our aim is to utilize a large skin area to obtain the optimum amount of radiation in the deeper tissues.

So, too, the increased distance from the target of the tube to the skin surface plays an important part by bettering quantitatively the amount of penetrating rays. Here secondary scattered radiation increases the amount of radiation. For instance, a tumor situated 10 cm. under the skin receives by means of secondary radiation from a high focal distance three and a half times the amount of the primary beam of ray emitted from the tube to the tissue underneath. In other words, the focal distance and the size of the portal of entry together, have a most important bearing upon the quantitative factors of the Roentgen or radium rays, while the quality of the ray depends entirely upon the substance and thickness of the filter.

Scientific and experimental studies by Dessauer, Friedrich, Seitz, and Wintz, and others have established that zinc and copper filters are best suited to effect an even and homogeneous radiation and also to improve penetration.

From these preliminary remarks I hope that no one will gain the impression that a panacea for cancer is already at hand, but at any rate better results will be looked for if an intelligent use is made of the newer methods of radium and Roentgen therapy in cancer. More gratifying results will be obtained, wherever possible, if first preoperative radiation is instituted, followed in about two weeks by radical surgical excision of the malignant growth, and finally intensive postoperative radiation. The intensive raying before operation will prevent transplantation of live cancer cells in the field of operation. This is borne out by experimental studies which I reported six years ago and which have been confirmed by others since, describing the interesting phenomenon, that a tumor excised from a rat and rayed insufficiently will grow again upon inoculation; on the other hand, if subjected to a large dose of *x*-ray, it will fail to grow upon reinoculation—in other words, preoperative raying seems to minimize the danger of transplanting malignant cells during operation to an adjacent healthy area. The rough handling during operation may cause cancer cells to become grafted on denuded surfaces. This is well illustrated in an address by Charles Mayo, describing the traumatizing of the tissues by the vulsellum forceps during vaginal hysterectomy for carcinoma of the cervix, resulting in local recurrences.

Preoperative radiation, he says, sickens carcinoma cells beyond the area of the local disease, and during the period of cell sickness their resistance is so reduced that operation at this time is most efficient. Aside from this, adequate preoperative radiation destroys cancer cells for a certain distance, so that their reproductivity is checked, and fibrous tissue formation ensues which acts as a barrier to the further extension of the malignant process. In carcinoma of the cervix, for instance, preoperative raying—either by radium in the cervix, of 50 or 100 mgs. for 24 hours, or *x*-ray administered about a week before radical operation, has rendered inoperable cases operable, and has proved most gratifying in the hands of the ablest gynecologists in England.

In carcinoma of the breast it is perhaps of greatest value. Here especially are we most frequently confronted with local postoperative recurrences in the scar and field of operation. My recent experience causes me to emphasize this point. In one case of preoperative radiation for carcinoma of the breast, operated upon two weeks later, it was most gratifying to receive the report from one of our foremost pathologists stating that the tumor in the breast had so diminished that upon sectioning the breast he had difficulty in finding it. Upon microscopical examination, he states, the cancer cells were simply a shadow of a cell without protoplasm, and only the faint remains of a nucleus could be detected.

Since the advent of modern therapy sufficient time has not elapsed to permit us to draw clear cut and definite conclusions, but *a priori*, it would seem that with intelligent radiation before operation, and followed as soon as possible after the operation with a complete knockout dose of intensive radiation, more satisfactory results in cancer of the breast will be obtained.

On the other hand, it is indeed most discouraging to read the recent report of Sistrunk of the Mayo Clinic. Of 218 cases of cancer of the breast operated upon in 1911, 1912, 1913, 78 per cent. had succumbed during the five-year period, and of the 22 per cent. of the patients alive the greatest number originally showed localized breast tumors with no axillary lymphatic involvement.

My own technique for preoperative radiation in cancer of the breast consists of a two-hour dose, with an intensity of 200,000 volts, 2½ MA, at a focal distance of 40 cm., through 0.5 mm. of copper, for the purpose of sickening the cancer cells and preventing grafting of living cells onto denuded surfaces. I follow this as soon as the patient is able to report after the operation with an intensive radiation of 8 to 10 hours, administered over 4 areas, one dose over the anterior field of operation, one over the supraclavicular, one into the axilla, and one postscapular. The anterior dose is administered through a large focal distance and a portal of entry 15 by 20 cm. in order to radiate evenly the tissues 3 cm. underneath with homogeneous rays. To accomplish homogeneous radiation it is desirable to obtain an even surface of the chest. This is done by placing over the chest a thin rubber bag filled with

water, or better yet an ox-bladder. This renders the anterior surface of the chest an even plane and causes uniform penetration to the tissues underneath. Secondly, it excites secondary radiations which are so beneficial in increasing the amount of radiation absorbed into the depths. For the axilla and supraclavicular doses, a smaller focal distance is made use of, and for the postscapular dose a 50 cm. distance is used. Since the introduction of the modern technique, I have treated 65 cases of carcinoma of the breast. This group comprises cases which were inoperable to start with, some had extensive involvement of the supraclavicular glands not touched at the time of operation because of their inaccessibility, others which presented themselves with postoperative recurrences in the scar or field of operation anywhere from two months to eight years after the operation. From this complex group only eight have died. I am reporting this group in detail in an article which I am preparing and will not bother you with the particulars now. The one thing that stands out very prominently in my mind is the fact that with the older technique no such results were ever obtainable.

Postoperative radiation, be it radium or *x*-ray, requires highly specialized technique. The marked improvement and great changes in the technique are due directly to scientific experimentation. There are at hand now accurate measurements as to the dosage required to knock out a cancer and the amount of radiation which reaches the tumor mass under the skin. This together with the absorption coefficient and also the determination of the secondary radiation from the tissues themselves, constitutes the dosage quotient and is perhaps one of the most important factors in the therapy of malignant disease.

Biological studies, according to Seitz and Wintz, put the cancer dose at 95 to 110 per cent. that of a skin erythema dose, that of sarcoma at 60 to 70 per cent., and that of the ovary at 25 to 30 per cent. This sounds perfectly simple and it would be if the cancer were situated on the surface of the skin. But if the tumor is 6 or 8 or 10 cm. under the surface, the full amount of a knock-out dose is attended with greater difficulties, as every centimeter of tissue absorbs a certain definite amount of the beam of *x*-ray, so that the amount reaching a rumor 10 cm. under the skin from one portal of entry is inadequate and insufficient to knock out a cancer mass. Herein lies the explanation of our former failures and can be ascribed to the inefficient radiation obtainable from the older type apparatus and tubes. In the technique of newer therapy, a more powerful apparatus is used, which furnishes intensities in sufficient amounts to penetrate 10 centimeters or more with 40 to 50 per cent. of the skin dose. In other words, it is easily possible to-day to attack a tumor 10 cm. in the depths of the body with one-half of a cancer dose from one portal of entry, the same quantity can be administered through a portal of entry on the opposite side, and if still more is required it can be given laterally from either side. The main and important thing to bear in mind is that it is absolutely necessary that every part of the tumor is rayed evenly and homogeneously so that the entire tumor mass receives the complete knock-out dose throughout. This comprises many physical and technical details and is a specialty in itself, requiring a thorough understanding of the physics of radiation, a familiarity with the biology of tumors, and their clinical behavior, and a knowledge of the exact localization of the malignant disease. An intelligent summation of the above-mentioned factors, together with the aim to administer the necessary radiation dose will doubtless yield more gratifying results.

Furthermore, it is most essential that the entire dose be given in one session. If for some reason it is expedient to protract the administration of the entire dose beyond one day; for instance, if the condition of the patient does not permit it because of Roentgen sickness, then it should be given on subsequent days and over a period not longer than a week. With small doses repeated over more than a week, the tissue has a chance to recuperate from the previous radiation and a dose 20 to 25 per cent. larger is required to obtain the necessary effect, and with this occurs an unwarranted strain upon the overlying skin.

My own technique, for instance, in carcinoma of the uterus is a modification of the one used by Opitz in Freiburg. In a woman whose anteroposterior diameter measures 18 to 22 cm., one dose of intensive radiation is administered from the anterior surface of the abdomen from the umbilicus to the outlet of the pelvis, the target of the tube is about 60 cm. from the skin and filters of copper or zinc are used. The intensity is generally from 190,000 to 200,000 volts, corresponding to a spark gap of 40 to 42 cm., and 2½ to 3½ milliamperes. This dose requires about 4 to 4½ hours, and is 50 to 55 per cent. of a cancer dose to the tumor mass. Another application is made from the posterior surface over an area 15 to 18 cm. square, this totals in all parts of the tumor about 110 per cent. of a skin erythema dose. In other cases before the radiation 50 to 100 mgs. of radium are inserted into the cervix and uterus, and left in about 24 hours, this gives us about 25 to 30 per cent. of a dose from the interior of the uterus, and consequently not more than 85 or 90 per cent. need be administered from the anterior and posterior surfaces. If for any reason it is desirable to shorten the time of treatment, the anterior and posterior radiation can be administered simultaneously by placing one tube over the patient as she lies on the table and one tube below.

This one session constitutes the entire treatment, and is not to be repeated for 3 to 6 months and, better yet, not for a longer interval. Most of the gynecologists in Germany have abolished surgical intervention in cases of cancer of the uterus, since the results with radiotherapy in their hands are superior to operative procedure, so much so that the ablest gynecologists have turned to radium and *x*-ray for the treatment of cancer of the uterus. In cancer of the body of the uterus their clinical cures are 80 to 85 per cent., and in cervical cancers 45 per cent. over a period of 4 years. Professor Opitz of Freiburg, the successor of Kroenig, informed me in a personal communication that since Jan. 1, 1919, no case of

cancer of the uterus had been operated upon in his clinic. His statistics then were 36 cases of cancer of the body of the uterus with 78 per cent. arrest of the disease, and in 63 cases of cancer of the cervix, 49 per cent. recession of the malignancy of the cervix occurred.

Leucemia, lymphosarcoma, and Hodgkin's disease have been transferred to the domain of the radiotherapists. Glandular tissue is the most radiosensitive of any tissue in the body, with the exception, perhaps, of the highly specialized reproductive organs, as the Graafian follicles and spermatogenic tissue. A very small amount of ray will destroy lymphoid tissue; glands almost melt within 48 hours after the application of radium or *x*-ray.

Localized metastases in the scar after radical excision of a carcinoma of the breast or, for that matter, localized metastases in any accessible area will respond favorably either to radium or Roentgen ray, or both combined.

Sarcomata as a rule require a dose of 60 to 70 per cent. that of a skin erythema dose, hence lend themselves readily to Roentgen therapy, providing no generalized sarcomatosis is present. Osteosarcoma or sarcoma of soft parts or glands should clear up if the proper dose is administered. Always bear in mind that 40 per cent. or less of the proper dose will stimulate the malignant tissue, and, on the other hand, anything in excess of a proper dose will destroy healthy tissue and cause irreparable damage by injuring the connective tissue barrier of the malignant growth, and so cause it to invade adjacent tissues, and favor metastases.

Another factor that requires careful analysis is the determination of whether radium or *x*-ray should be used in a given case. The amount of radium at present available is inadequate to penetrate into the deeper tissue, say 8 or 10 centimeters deep, in sufficient quantities to knock out a cancer cell unless a large amount of radium, much larger than any in use now, could be used at a distance with suitable heavy screening. Only with much larger quantities could an even and homogeneous radiation be obtained to penetrate in sufficient amounts to influence a cancer in the deeper structures. Furthermore, the dosage of radium and its accurate measurement have not been worked out carefully as yet, and until a standardized dosage, dispersion, and absorption coefficient, etc., has been established, we are hampered in the use of this most potent agent. Radium is to be preferred when a small, localized area is to be rayed, or when it can be placed in the center of a tumor mass. Here, too, a great danger arises, as it is perfectly clear that the malignant cells near the radium tube are readily destroyed, but more distant ones, however, not receiving sufficient radiation, may assume increased activity, and hence the growth may be stimulated instead of destroyed.

Right here it would not be amiss to point out that radiation by indifferent methods, or in the hands of an unskilled operator, is a very dangerous procedure. Both of these powerful agents are most valuable in the fight against cancer if intelligently handled as to dosage, filtration, focal distance, etc. On the other hand, the harm and injury that will necessarily follow irresponsible methods will more than offset the benefit derived from it.

The technique is not simple and requires extensive training. Looking back upon my own experience, I am aware of my own shortcomings in the early days of radiotherapy, and it is only fair to say that everyone must profit by his own mistakes. Errors of the unskillful, however, are likely to give rise to very unfortunate and serious consequences.

The salient points which I wish to emphasize in my conclusion, therefore, are:

1. The early diagnosis of carcinoma to insure better prognosis. Preoperative radiation should be instituted to prevent transplantation of malignant cells during surgical excision, which should be performed about 2 weeks later and followed by postoperative raying to the extent of a complete knockout dose for cancer.

2. The modern technique of Roentgen and radium therapy depends upon proper filtration, to obtain homogeneous and evenly dispersed radiation, proper focal distance, proper portal of entry. Moreover, the entire diseased area should receive the needed quantity of radiation of the same quality throughout. Care should be taken to avoid over or under dosing.

3. Inoperability does not necessarily mean incurability, since modern Roentgen therapy has caused inoperable cases to become operable, and in the otherwise hopeless cases has brought relief of pain and discomfort.

4. Irradiation is more effective if the entire dose be administered at one time, and with the maximum intensity, than if it is split up over a longer period of time.

5. The necessity for the surgeon and radiotherapists to meet on common grounds for a correct analysis and standardization in the treatment of malignant disease, as surgery and radiation combined would better, perhaps, the now none too satisfactory results in malignant diseases.

6. Modern therapy is only a beginning in the right direction, and my personal observation leads me to believe that scientific and experimental studies along this line will yield still greater progress in our fight against cancer.

73 East Ninetieth Street.

RÉSUMÉ OF VACCINE THERAPEUTICS.

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LOUISVILLE, KY.

Experience is our best teacher. In therapeutics careful clinical observation under the use of certain therapeutic measures is our safest and surest guide toward therapeutic progress and the lessons taught by experience are often just the reverse of what was expected. In the treatment of extensive acute infections with high temperature, according to our early theoretic conception vaccines would be contraindicated, but I have found the reverse to be true; that instead of bein contraindicated our very best results are obtained in just this class of cases.

These concepts were based on the theory that high temperature indicated extensive toxemia and that this was a positive indication of an excessive amount of toxic bacterial products in the patient's body, and that under such conditions nothing except harm could be expected from injecting more toxins in the form of killed bacteria or vaccines. If this problem of infection and immunity were simply a question of toxins and immunizing responses the foregoing concept would hold good, but a closer study of immunity shows that there is more than this involved in the immunizing process in the presence of infecting organisms. In active infections the fact that we are dealing with a living entity that has gained entrance to the tissues and fluids of the body must also be taken into account, that this living entity performs certain functions for its own growth and development; that during this growth and development certain toxic ferments are produced by this living entity which have a very destructive influence, but little if any of the properties which go toward stimulating cells in their defensive capacity for antibody production. To depend on the infecting organism as the means of stimulating cells for antibody formation, of necessity involves taking chances that enough toxic materials, which do not favorably influence cell activities in their defensive capacity, might destroy the life of the patient.

A toxic condition as the result of an infection does not necessarily imply that the substances which are responsible for the toxemia are of the kind which will favorably influence the resistance of the patient. When a high temperature is encountered it does not follow that the germ-produced toxins which are responsible for the toxemia are of the kind which will favorably influence the resistance of the patient. When a high temperature is encountered it does not follow that the germ-produced toxins which are responsible for the high temperature will of necessity favorably influence the defensive mechanism, but on the contrary may overtax, fatigue, and be destructive in character. So when a high temperature is encountered it is more than likely that the germ-produced toxins which are responsible for the fever are not of the kind which stimulate cells in their defensive capacity to bring about an immunity; that no adequate influence is operating toward immunization with a resulting elimination of the infection; and that the infecting organism does not of necessity possess antigenic properties which stimulate the defenses of the body, but rather retards or inhibits their action.

The essential requirements under these conditions are the immediate application of a stimulus to cell structures which will arouse their defensive forces for the development of suitable antibodies. That killed bacterial suspensions or bacterial vaccines when injected into healthy tissues stimulate cells for antibody formation is no longer questioned, it is believed only by the inexperienced that this can not hold good under toxic conditions as shown by high temperature. The fear is that the injection of the killed germs would add enough toxic material to cause an increase of toxic symptoms. In this connection it is important to realize that bacterial vaccines are never given in what might be regarded as toxic doses. In proportion to the amount of toxic materials that are produced by an active extensive acute infection every hour of the day, the dose of a bacterial vaccine is infinitesimal. The bacterial content of an average dose of vaccine would weigh less than .0004 of a grain, a quantity so small that it amounts to nothing as compared to the amount of toxic material that the patient is already contending with. It is for this reason that no appreciable difference in temperature or other toxic symptoms will follow a vaccine injection when given during the presence of a high temperature, even when so-called large doses are given. The essential difference between the action of the killed organisms contained in the injected vaccine and the action of the live organism responsible for the infection is that the live organism, on account of its extremely toxic properties, does not favorably influence tissue cells with which it comes in contact for antibody production, while the injected killed organisms do so influence them and thus hasten the development of an immunity.

That bacterial vaccine injections do not increase the toxicity of the patient, when given in extensive acute infections, is readily determined by a careful observation of the temperature curve and the pulse rate. When given under high temperature conditions no appreciable rise of temperature will follow a vaccine injection nor will there be any increase in the pulse rate, nor do any other unfavorable symptoms develop which can be ascribed to the vaccine injection. But, on the contrary, as a rule it will be found that the temperature will come down, the pulse will improve, and other toxic symptoms will start to abate within twenty-four hours providing the proper vaccine in a sufficiently large dose—usually one mil of a stock suspension—has been given before the infection has advanced sufficiently to cripple the responses of the patient. Usually this will hold good during the first few days of the infection; but the best results are obtained if the vaccines are given soon, within a day, after clinical symptoms show the presence of an active acute infection.

In severe acute infections where germ development is extensive antibodies are used up rapidly. A small area of tissues where the vaccine was injected may become actively engaged in the production of antibodies; but, as a result of toxic materials distributed throughout the system from the infecting organisms, these activated cells may in time become fatigued in this capacity; then after a short spell of clinical improvement the infection gains the upper hand again. It is not an uncommon clinical experience to find marked improvement within one day after the first vaccine injection; an improvement often so dramatic that one is inclined to think the trouble is over with, and the case is allowed to drift along until within three or four days the condition becomes just as bad as before the vaccine was given, and not uncommonly when this condition develops the vaccine will not produce the striking results that the first dose did; meantime, as a result of accumulated toxemia from the progressing infection, the cells of the body have become less responsive to the antigenic influence of the vaccine. For these various reasons it is very important that inoculations should be made at comparatively short intervals in extensive acute infections, so that another immunizing response will

have time to develop from newly involved tissue at the site of injection before the immunizing influence from the previous injection has had time to wear off. Clinical experience indicates that this is best accomplished by giving the vaccine at daily intervals until the temperature shows a distinct tendency to remain down, but it is never wise to give less than two or three injections at daily intervals even if the temperature does come down to normal meantime. After a normal temperature is obtained inoculations should be made at 2 to 4 day intervals until convalescence is complete. In extremely bad cases it is advisable to give the vaccine twice daily until the very severe symptoms are brought under control.

When giving vaccine in febrile conditions we must divorce our thought from the idea that vaccines reduce temperature in a way similar to that of drugs. Infections are toxic, especially those produced by the streptococcus and pneumococcus, because the ferments which the germs secrete for the purpose of digesting the food on which they live are toxic. Some of these ferments are liberated from the infecting organisms and are conveyed throughout the system by means of the circulating medium. Immunity is primarily brought about by antibodies combining with the ferments which the infecting organisms utilize for digesting their food, thus neutralizing, inactivating, destroying the only weapon which they possess for growth and multiplication, and at the same time rendering them subject to phagocytic action by the white blood cells. By injecting vaccines into healthy tissues we arouse rapid antibody production by the tissues into which the vaccines were injected. These antibodies are conveyed to all parts of the body by the circulating medium and will combine with the ferments that have escaped from the infecting organism, scattered throughout the patient's system, just the same as with those surrounding the infecting organism, and it is the neutralizing of these toxic ferments which accounts for the rapid drop in temperature which is so often seen when vaccines are given in the early stages of high fever. These toxic ferments do not necessarily produce fever. Extremely toxic cases are often found with a subnormal temperature even during the early stages of the infection, and these cases are generally regarded more dangerous than when high temperature develops. Vaccine injections stimulate the production of antibodies, and that antibodies neutralize these toxic ferments is illustrated by the use of vaccines in cases where subnormal temperatures are produced by extensive infections. During the recent influenza epidemic many of the worst cases started with a subnormal temperature. Vaccines in these cases brought the temperature up, as well as down in the cases where it was high.

The objections to the use of bacterial vaccines in the treatment of extensive acute infections are purely theoretical. The contentions are, that the toxic symptoms which prevail in these acute infections show that the patient is suffering from an overload of bacteria and their products; that to give vaccines under such conditions is irrational because we thereby simply add more bacterial toxins where it is clearly evident that the patient is suffering from an excessive amount of toxins; and that by giving vaccines under such conditions we are liable to thrust the patient into the so-called "negative phase" and make matters worse.

Many of these objectors have heard of the good results that are being obtained with vaccines in extensive acute infections, but as a rule their theoretical prejudices are so strong that they are unwilling to give them a trial, and if perchance they do try them, nine times out of ten they allow their preconceived notions to prevail; allow the thought, that by giving vaccines we make the patient more toxic, to dominate, with the result that the patient receives entirely too small doses at much too long intervals. Such trials would naturally result in failure, and yet the contention from these sources will carry more weight with many otherwise well informed physicians than statements from general practitioners who have used vaccines with success, because they use them in such a way that experience teaches them to be most efficient. Most of the available literature on vaccine therapy has been written by laboratory research workers who hold that vaccines are contraindicated in extensive acute infections and that, if vaccines are employed in such cases, very small doses should be recommended.

I find, however, that absolutely contrary conditions prevail. I find that in subacute and chronic infections, to obtain the best results, treatment must be started with a small dose, usually 0.2 mil of a standardized suspension, and the dose should then be gradually increased to 1 mil or more, and inoculations made at 4 to 7 day intervals. If in chronic infections treatment is started with a large dose, unpleasant reactions are almost sure to follow and if the injections are repeated at short intervals the infection will not subside as rapidly as if small doses are employed at long intervals. In extensive acute infections, large doses—1 mil of a standard suspension given at the earliest possible moment, repeated at daily intervals—give decidedly the best results, and in extremely bad cases the vaccine may be given twice a day to advantage. No appreciable reactions follow the use of 1 mil doses of vaccine when given during a high temperature and other indications of a toxic infection, nor does any material infiltration develop at the site of infection. The rule should be that in the most severe infections, the largest dose should be given at the shortest intervals and the less severe cases should receive the smaller dose at longer intervals. Unless this general rule is followed, no satisfactory results will be obtained from the use of bacterial vaccines.

So long as objectors to vaccine therapy remain obstinate, so long as they are unwilling to give vaccines an efficient trial, we must expect the unfortunate victims of pneumonia and similar infections to pay the penalty; but surely this apathy cannot continue much longer. If any dangerous or unpleasant symptoms followed the use of vaccines, there would be some excuse for hesitation, but all available information shows that the treatment is absolutely harmless. The reason for the necessity of large doses of vaccines at short intervals may be explained on the ground that in extensive acute infections we have a large number of organisms multiplying rapidly to contend with and to destroy these organisms there is required a large amount of

antibody. If the antibody that was produced as the result of the first injection is all consumed before all the infecting organisms are destroyed, the infection may "light up" again, but by repeating the inoculations at short intervals, the antibody producing process will be continued until the infection is eliminated.

2634 Frankfort Avenue.

THE MODERN HEALING OF MASTOID WOUNDS:

ITS RELATION TO MASTOIDECTOMY AND POSTOPERATIVE DRESSINGS.*

By HUGH B. BLACKWELL, M.D.,

NEW YORK.

THOSE who recall the long and painful convalescence with the resultant unsightly depressed cicatrix which usually attended a simple mastoid operation performed ten years ago or more and from a modern standpoint compares the postoperative recovery of the patient who has more recently undergone this procedure are usually impressed by the marked modification generally speaking of the distressing factors of convalescence which were at one time regarded as the necessary incidents of the mastoid operation.

So great has our progress been along these lines that to-day one may fairly say that the time required for the healing of a mastoid wound is usually three of four weeks which is half or less than half of the period formerly considered necessary. At present the dressings are comparatively painless and now instead of healing taking place with an unsightly hole behind the auricle the mastoid scar more frequently resembles an ordinary incision with little or no depression.

The influences which have brought about this happy change of convalescence in the mastoid patient are many, but from a technical standpoint we believe can be grouped under the following heads:

1. The general dissemination of knowledge concerning the technique of the simple mastoid operation, with a resulting improvement in operative skill shown by specialists generally.

2. A complete change of attitude as regards the use of gauze in postoperative dressings. Formerly this agent was employed in a mastoid wound not so much for drainage as for the production of pressure, which for some inscrutable reason was considered necessary in the wound. In the old days, immediately upon the conclusion of the operation the mastoid cavity was packed tightly with gauze, the final strip was frequently forced into the wound by the operator leaning with his weight against the dressing. It was not uncommon to employ five or six strips of gauze one inch wide. A dry external dressing was then usually applied and the first complete dressing performed on the fourth or fifth day. This tight packing and mass of external dry gauze acted as an excellent cork, frequently damming retained wound secretions. So great was the pain attendant upon the first dressing that it was commonly considered necessary to give a general anesthetic. During this era of tight packing the rubber-tissue dressing advocated by Dr. Whiting was often used to relieve the pain of dressing. I have not seen it employed for a number of years, that is since tight packing has been discarded. Our modern practice is not to use gauze packing so as to produce pressure in the wound, but only in such amount as to secure drainage and by light contact with the wall of the cavity stimulate rather than discourage the formation of granulations. We believe that operators generally use to-day less than one-half the quantity of gauze in the mastoid wound than was formerly the case. We have learned that when a thorough mastoidectomy has been performed it is no longer necessary to pack the wound tightly, as the disease processes have been removed now, generally speaking, by the operation.

3. The use of more sutures at the conclusion of the operation; now it is customary to suture the upper half of the wound only, the lower half or one-third being left open.

4. A much more tolerant and sympathetic attitude is held to-day toward the development and growth of granulations in the mastoid wound. The former practice of scraping, excising, and cauterizing these loops of blood vessels is no longer practised with the same religious fervor, they are even frequently permitted to become redundant, and some of us hold that the wound when clean may be permitted to heal from above downward, below upward, behind forward, or without inward with perfect safety. Since our operative skill has improved and we have become more thorough in removing these diseased mastoid cells our postoperative dressings have become simpler and infected wounds have become infrequent. During the era of tight packing, owing to the great pressure exerted by the gauze, the inside of the mastoid cavity often presented a hard white appearance resembling a tea cup with no evidence of granulation tissue for a period of sometimes two weeks or more after the operation; and if in some cases where a more thorough operation was performed should this tight packing especially in the antrum region be continued the mucous membrane of the middle ear would grow out into the mastoid wound resulting in a deep postaural depression with a permanent fistula at the bottom, or form an air sack at the bottom of the wound underneath a thin cicatrix which would balloon out upon forcibly blowing the nose or tend to break down at future intervals.

5. Wet and frequent dressings. This subject really comes under the head of improved drainage as the latter is best promoted by the application of these principles. Mastoids are to-day dressed more frequently than heretofore. We believe in dressing all mastoids every day, and for the first ten days or two weeks employ an external wet dressing as the moist gauze seems to absorb discharge more readily.

In reviewing the history of this movement for the better and comparatively more rapid healing of the mastoid wound one is impressed by the gradual almost insensible recognition and general adoption of most of the principles here stated. It is interesting to recall some of the attempts made to secure the results which are now commonly obtained by the employment of other methods and if possible to

*Read before the American Otological Society, June 1, 1921.

relate their influence on our present attitude toward this subject. We believe the members of this society will support us in the contention that the best results from both the surgical and functional standpoints follows the mastoid operation when a thorough exenteration of all the diseased bone has been performed, and that the improvement in healing, as shown by the present-day procedure, is dependent first of all upon a thorough and complete operation. Given a clean cavity as a beginning, then we may safely apply subsequently in the process of healing our own individual ideas as to the exact manner of dressing, and provided we do not violate cardinal surgical principles all of us arrive at practically the same result. It is not our intention to attempt to instruct those present as to how to dress a mastoid wound, but merely to indicate in a general way the lines along which the best results are now secured and to show the remarkable change in our attitude toward this subject in recent years and the probable reasons therefor. We remember some eight or nine years ago hearing a paper read before this society in which the operator urged the importance of preserving what he called the capsule of the antrum, or antral capsule, he attempted to attribute the cases of delayed healing, etc., which were so common at that time to the practice of curetting the mastoid antrum. How many of us to-day would allow this mass of infected bone and tissue to remain undisturbed in the bottom of the wound at the conclusion of a mastoid operation?

We are all familiar with the work done by various authors along the lines of straight blood-clot healing; that is, in cases where the cavity is allowed to fill with blood the posterior wound is sutured throughout, no gauze packing being used in the mastoid, healing being expected to take place by primary organization of the blood clot. The brilliant promises which the early results held forth in this field have not been fulfilled, and we believe that the members here present will generally support us in disapproving of this method of recovery as being not entirely unattended by danger. There was another variety of cases differing widely from the above which unfortunately, owing to the justifiable prejudice held by most of the physicians against straight blood-clot healing, were called cases of modified or partial blood-clot healing. In these patients the posterior wound was allowed to remain open in its lower one-half or one-third, and posterior gauze packing was employed in the mastoid from the beginning, perhaps not so much as we use today; however, the postoperative treatment of these cases differed only in degree from what is now our usual custom. We believe that in effect a marked analogy exists between what was formerly known as the healing of a modified or partial blood clot case and our own present modern form of healing. Our reason for this belief is based on the fact that immediately upon the conclusion of a simple mastoid operation, unless the wound is packed tightly, in a short time the cavity will contain more or less blood, where the packing is loose this blood will naturally accumulate and clot in the space between the gauze and the walls of the cavity: the thickness of the clot will depend entirely upon the amount of gauze placed in the wound at the conclusion of the operation; and while it may be digested and thrown out subsequently in the process of healing, yet we believe before doing so this blood promotes the development of granulations and shortens the time of healing. It is a matter of no small gratification for the author to observe that the principles which he laid down as necessary for the more rapid healing of mastoid wounds in a paper read before this society nine years ago, which were in effect: (1) thorough mastoidectomy, (2) light packing, (3) frequent dressings, are today regarded as essential factors in the modern healing of mastoid wounds.

148 WEST FIFTY-EIGHTH STREET.

REPORTS OF SEVEN CESAREAN SECTIONS:

FIVE FOR ECLAMPSIA AND TWO FOR CONTRACTED PELVIS.*

BY W. L. DUNNING, M.D.,

NEWBURGH, N. Y.

CASE I.—Mrs. B., aged nineteen, was referred to St. Luke's Hospital by Dr. Moshier. She was six and a half months advanced in her first pregnancy. Her symptoms began with headache on January 14, 1919, but a week later became intensified and referred to the vertex and parietal regions, with dizziness and spots before her eyes. At 5 A. M. she began vomiting and at 10 o'clock was stricken with blindness. Convulsions started at 11 A. M. January 21, 1919, and between that hour and 4 P. M., when she arrived at the hospital, she had twelve convusions, remaining in deep coma. There was edema of face and lower extremities. The laboratory report showed the specific gravity of urine to be 1,016, with a large amount of albumin and granular and hyaline casts. The cervix uteri was narrow and undilated; uterus showed a six and a half months' gestation. The patient was hastily prepared and taken to the operating room, where a cesarean section was performed. She was then removed to her bed, her stomach washed out, and two ounces of magnesium sulphate introduced. A copious enema of soapsuds was given, followed by hot colonic irrigations. Tincture veratrum viride and nitroglycerine were given by hypodermic and repeated every two hours. Four convulsions occurred after the operation. Coma continued for eight hours, followed by gradual improvement. She left the hospital by request at the end of two weeks, with a trace of albumin in her urine.

The infant did not survive.

CASE II.—Mrs. S. was referred to the hospital by Dr. Waterbury. She arrived at 5 A. M. on January 9, 1919, in deep coma; she was six and a half months advanced in her first pregnancy. She had six convulsions before admission. Uranalysis by Dr. Mars: Specific gravity 1,036, solid albumin, hyaline and granular casts. At six o'clock, one hour after admission, she was removed to the operating room, and a cesarean section was performed. The placenta occupied the median line; it was separated and pushed aside and a male child delivered. After completion of the operation the patient was removed to her bed, her stomach washed out, and magnesium sulphate left in the stomach. Hot colonic irrigations given. Veratrum viride and nitroglycerine given hypodermically. She had four convulsions after the operation. Coma continued three days, followed by gradual improvement, and she left the hospital four weeks after admission in good condition. The infant lived seventeen days.

CASE III.—Mrs. E., aged twenty-two, primipara, thirty-eight weeks pregnant. Referred to the hospital by Dr. Cotter. Pelvic measurements normal; blood pressure 120-80. Uranalysis by Dr. Westcott: Specific gravity 1,020, acid, heavy cloud of albumin, many granular and hyaline casts. She was admitted to the hospital Dec. 12, 1920, and went into convulsions at 4

*Read before the Newburgh Bay Medical Society. The first three cases on May 11, 1920, the latter four cases on November 2, 1921.

P. M.; within the next hour she had four convulsions, remaining in coma. Cesarean section was performed at 5 P. M., one hour after the outset of the convulsions. A seven and a half pound boy was delivered. Patient was removed to her bad; stomach washed out. Hot irrigations by bowel, and nitroglycerine and veratrum viride by hypodermic; a large dose of magnesium sulphate left in stomach. She had sixteen convulsions after the operation, after which she showed improvement. She nursed her infant and left the hospital January 18, 1920.

Mother and infant in good condition.

CASE IV.—Mrs. M., aged twenty-five, primipara. Pelvic measurements: Interspinal, 22 cm. (8.8 in.); intercristal, 26 cm. (10.4 in.); ext. conjugate, 17 cm. (6.8 in.); rt. ext. oblique, 20 cm. (8 in.); lft. ext. oblique, 20 cm. (8 in.); diagonal conjugate, 11 cm. (4.4 in.); true conjugate, 8.5 cm. (3.4 in.). She went into labor in September 17, 1920, at 9 A. MI, breech presenting L. S. A. After a trial of labor lasting fifty-five hours, the presenting part was not engaged, and the patient, showing signs of exhaustion, was removed to the operating room September 19, 1920, at 4 P. M. Cesarean section was performed and a girl baby, weighing six pounds and twelve ounces, delivered.

She made a good recovery and left the hospital nursing her baby on October 14, 1920.

CASE V.—Mrs. S., a young primipara, six and a fourth months' gestation, was seen in consultation with Dr. D. I. O'Leary. She went into convulsions on October 9, 1920, at 12 o'clock noon, had four convulsions between noon and 4 P. M., remaining in coma. Uranalysis by Dr. Westcott: Specific gravity, 1,050, acid, albumin almost solid, very numerous granular and hyaline casts. Cesarean section was performed at 4 P. M., removing a male child that survived two hours. No further convulsions occurred after operation. The usual anti-eclamptic measures followed. She made a rapid recovery, leaving the hospital about the twenty-first day.

CASE VI.—Mrs. E., aged twenty-three, primipara, full term. Pelvic measurements: Interspinal, 22 cm. (8.8 in.); intercristal, 26 cm. (10.4 in.); right ext. oblique, 20 cm. (8 in.); left ext. oblique, 20 cm. (8 in.); external conjugate, 20 cm. (8 in.); diagonal conjugate, 11 cm. (4.4 in.); true conjugate, 8.5 cm. (3.4 in.). The amniotic sac broke on July 7, 1921. On July 15, as labor had not started, it was proposed that labor be induced, with the prospect of an operation. The patient chose cesarean section, which was performed on the same day at 11.20 A. M. Operation completed in forty minutes; placenta was in the median line and caused more than the usual amount of hemorrhage. A female child, weighing six pounds and fifteen ounces, was delivered. Both mother and child made a good recovery, and left the hospital in excellent condition on August 27, 1921.

CASE VII.—Mrs. S., aged twenty-two, primipara, seven months' gestation. Referred to the hospital by Dr. Sprague. While on her way to the hospital for treatment she went into convulsions. She arrived at the hospital on August 24, 1921, at 11 A. M. Between the hour of her arrival at the hospital and 1 P. M. she had four convulsions, remaining in coma. Uranalysis by Dr. Westcott: Specific gravity 1,030, acid, albumin 55 per cent., microscopical field filled with granular and hyaline casts. Cesarean section was performed at 1 P. M Duration fifty minutes. A female child, weighing three and a half pounds, was delivered, and survived two days. After operation the mother's stomach was washed out and two ounces of magnesium sulphate left in the stomach. Tincture of veratrum viride and nitroglycerine given by hyperdermic every two hours. High colonic flushings given every six hours. Six hours after the operation convulsions returned and recurred every forty minutes for about seven hours, making fourteen convulsions in all, after which they ceased. The patient became conscious on the third day. Recovery was rapid. She left the hospital in good condition on the eighteenth day.

The prevention of eclampsia should begin with pregnancy. The family physician may do much to teach the patient the necessity of engaging her physician early and making frequent visits to him for advice in diet, exercise, proper dress, attention to bowels, the frequent examination of urine, arterial tension, etc., and that constipation, scanty urine, dropsy, spots before the eyes, headache are danger signals and call for immediate attention. As important as this is in the first half of pregnancy, it becomes more so in the second half. The nearer full term, the greater is the danger. When toxæmia is present due to the involvement of the kidneys active treatment is required, and if it should become necessary to interrupt pregnancy, this procedure should not be too long delayed. If convulsions occur the interruption of pregnancy becomes imperative. In such cases cesarean section to the writer is the operation of choice.

286 LIBERTY STREET.

THE DIAGNOSIS OF HERNIA OF THE OVARY AND TUBE.

BY LEIGH F. WATSON, M.D.,
CHICAGO, ILL.

HERNIAS of the ovary, tube and uterus are exposed to certain complications, the most frequent being torsion and strangulation of the adnexa and infection of the sac.

Torsion of the adnexa is a frequent complication of hernia of the ovary and tube in children under two years of age. The symptoms are indefinite crying, restlessness and irritability. Vomiting and tympanites are rare. There is an irreducible tumor in the hernial region, which is swollen, tender, and painful. If the torsion is long continued or severe, strangulation is liable to occur. Muller reported the case of an infant five months old whose left ovary and tube had been removed on account of strangulation; five weeks after this was done a hernia of the tube and ovary appeared on the right side. On account of the strangulation, an operation was performed and the tube and ovary returned to the abdominal cavity and the hernial opening closed. Eustace and McNealy record a case of strangulated inguinal hernia of the ovary and tube in an infant six months old. The right labium majus was red, swollen, tender, and pitted on pressure. There was no fluctuation or pulsation in the mass. At operation a torsion of the tube and ovary of 180 degrees was found. The adnexa were resected and the child made an uneventful recovery.

Strangulation is usually manifested by a tender, painful, irreducible mass, unless intestine is present, when there will be symptoms of nausea, vomiting and constipation. The mass tends to increase in size and may resemble a strangulated omentocele. In some instances there is no pain, and strangulation is not discovered until during the course of an operation for a supposedly simple irreducible hernia. Peritonitis is rare. Muller saw a case in which a loop of intestine was strangulated in the hernial sac by the round ligament and ovary. Torsion of the tube is common (Lockwood, Morgan, Schnitzler and Gangele).

Brunner, Vogeland and Lejars saw cases in which the tube was strangulated at the internal inguinal ring. Retrograde strangulation of the Fallopian tube is very rare. Maydl reported a case, and a second one has been reported by Vas. The latter

case occurred in a sixteen year old girl with a right inguinal hernia. The loop in the sac was 11 cm. long. The free end in the abdominal cavity was gangrenous. Prompt recovery followed excision.

In Wyeth's case of strangulation of the Fallopian tube alone, the infection spread through the disintegrating sac and reached the abdominal cavity, causing a fatal peritonitis.

Suppuration sometimes occurs as a result of infection from the Fallopian tube, which may also involve the ovary.

Hernia of the ovary, tube and uterus may be mistaken for a variety of conditions because of the frequency of congenital malformation in the internal genitalia, as well as other developmental anomalies. The presence of hermaphrodism or pseudohermaphrodism is not rare, and for this reason a testicle may be mistaken for the ovary and tube. Intestinal hernia is resonant, and is usually reducible, with a gurgling sound. If it is irreducible, the symptoms are those of intestinal obstruction or strangulation. Omentum adherent in the hernial sac may confuse diagnosis. If the hernia contains intestine, omentum, ovary and tube, a diagnosis is almost impossible unless the intestine and omentum can be returned to the abdominal cavity, and movement of the ovary obtained by vaginal examination. Cysts in the canal of Nuck may be differentiated easily, as they are fluctuating, transluscent, and irreducible; and vaginal examination shows the uterus and adnexæ in their normal position. Strangulated hernia of the ovary and tube simulating abscess in the labium majus is difficult to diagnose when seen in infancy. Two cases in patients under six months of age have been reported by Erdmann and Harper and Skinner.

Other conditions that may simulate hernia of the ovary and tube are: Dermoid cyst in the canal of Nuck (Patterson, Kepler and Waiss); enlarged lymph glands (Pott, Lassus); cyst of the labium majus (Guersant); and a tag of omentum, which is usually found attached to the upper part of the inguinal canal (Eccles).

The non-gravid uterus in a hernial sac is usually difficult to diagnose and is hardly ever looked for unless it causes symptoms. Its presence can sometimes be detected by vaginal examination or by passing a uterine sound which enters the hernial sac. Hernia of the pregnant uterus may be mistaken for extrauterine pregnancy. When examination discloses the non-gravid uterus in the abdominal cavity, displaced toward, and connected with the gradually enlarging tumor in the hernial sac, the condition is probably one of extrauterine pregnancy. In the case observed by Malherbe and Jordan, a tubal pregnancy presented symptoms of irreducible hernia and partial strangulation. At operation a fetus five inches long was found.

30 North Michigan Avenue.

Type of Infantile Convulsions.—Reiche in analyzing the convulsions of childhood isolates a type seen in whooping cough expressed clinically as infantile eclampsia. This he found to be associated with meningitis. In this affection lumbar puncture was found to be of great efficacy. The tension of the fluid was seen to be increased and the chlorides increased—the first named phenomenon was believed to be due to the second and to be responsible for the convulsions.—*La Pediatria.*

AN UNUSUAL CASE OF STONE IN THE POSTERIOR URETHRA.

By LEO MICHEL, M.D.,

NEW YORK.

STONE in any part of the urethra is an uncommon finding. Ordinarily two varieties are described. The first type is known as primary, and these arise within the urethra itself. The second type is secondary. Such stones are delayed in passage from the place of formation to the outside world at some site along the urethra. Recently we had the opportunity of observing a patient who exhibited a most interesting case of the latter type, and who gave an even more interesting history, which is thought worthy of reporting.

L. W., aged thirty-one years, was referred by Dr. I. Arthur Stoloff. The patient was a presser by occupation. He was married. For a period of between five and six years he had been suffering with symptoms referabe to the genitourinary tract, and had been under the care of numerous good urologists and surgeons. He dated the beginning of this trouble to 1916, at which time he was seized with most acute pains in the region of the left flank and lower left abdomen. An *x*-ray examination revealed a stone in the lower third of the left ureter, and an operation for this stone was done. Despite every effort to locate the stone at the time of operation, however, none could be found, and the patient was sewed up. The patient experienced no relief following this procedure, and he sought aid from various men, submitting to repeated cystoscopic examinations, irrigation of the kidney pelvis, irrigation of the bladder, etc., the diagnoses offered varying from tuberculosis of the kidney to cystitis, omitting stone. The symptoms during this time had changed, and he was suffering with frequency of urination both day and night. It was not unusual for the patient to void as often as thirty times daily, only a small quantity at any one urination, and both the initial and closing efforts were attended by severe pains so that he was doubled over. During this period of five years he had had the bladder infected and required treatment for cystitis, but recently the urine had cleared up nicely, and there had been no evidence of cystitis. Some six weeks before he was referred to me the patient complained of pains along the right side such as he had had on the left side, but there was no evidence of stone in the right kidney.

The patient was cystoscoped at the request of Dr. Stoloff, but no stone was seen within the bladder. The left ureter was patulous, and the trigone was congested. On the passage of the instrument a peculiar gritting sensation had been transmitted which gave the impression that a stone was passed over. The cystoscope was removed and through a cystourethroscope, an examination of the floor of the sphincter margin (urethral aspect) revealed a prominence which extended upward about 0.5 cm. and looked not unlike an inverted uvula. Attempts at removal by slitting the mucous membrane and removing the stone through the cystourethroscope failed, as no satisfactory grip could be had on the stone. An open straight endoscope was then passed and a Mathew's forceps readily grasped the stone and it was removed. The entire operation was done under local anesthesia. Very little bleeding attended this procedure, and the patient had no discomfort. All symptoms were immediately relieved. For the first time in a long while urination was free from the severe pain he had come to expect and there has been no recurrence.

The secret of diagnosis of the position of the stone in this case lay with the delicacy of manipulation so that the unusual "feel" of the passage of an instrument could be interpreted as it was. The stone after removal proved to be rather flat, irregularly oval, with sharp edge, and 80 x 40 x 120 mm.

15 Central Park West.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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New York, April 22, 1922.

TO OUR READERS.

The first number of the MEDICAL RECORD appeared on March 1, 1866. The last number, as such, is the present issue.

The MEDICAL RECORD is justly proud of its history. Almost all of the epoch-making discoveries in Medicine and Surgery in the past half century were first announced in its pages. Questions of the first importance to the medical profession were discussed as occasion arose, and the influence of the paper became very large.

Two men only have filled the editorial chair in these fifty-six years: Dr. George F. Shrady, and Dr. Thomas L. Stedman. The journalistic acumen and enterprise of the former and the ripe judgment and polished scholarship of the latter have borne fruit in the reputation always enjoyed by the MEDICAL RECORD.

The increasing demands of their medical book business have made it advisable for the publishers to transfer the publication of the paper. It will be combined with the *New York Medical Journal*, a periodical which is even older than the MEDICAL RECORD.

Subscriptions will be completed by service of the combined journal.

We would express to our many friends our appreciation of their loyal support, which we have always tried to merit.

Publishers of the MEDICAL RECORD.

ANAPHYLAXIS AND IDIOSYNCRASY.

SPONTANEOUS anaphylaxis in man is admitted to differ notably from experimental anaphylaxis. In the former the soil plays a prominent role which in the latter is effaced. In the experimental anaphylaxis of animals the phenomena closely follow the animal species. In spontaneous human anaphylaxis it is often a matter of individuality—of specificity not for the species but for the individual. In other words, we are dealing with so-called idiosyncrasy. This is not strictly limited to the individual, but may be shared by members of his family and he may transmit it to his offspring.

The phenomenon of sensibilization differs in man as compared with laboratory animals. We can sensibilize a guinea pig to a serum injection with almost mathematical precision, and this is equally the case with the dog and rabbit. But with man there are numerous individual differences. The second injection may provoke no reaction at all or a delayed reaction. In not over half the subjects will there be anything approximating a constant behavior. In this class of findings in man and animals we are dealing, of course, with parenteral exhibition of the serum. In spontaneous anaphylaxis, on the contrary, all of the finds are based on buccal ingestion. Those subjects who develop hay fever, asthma, and urticaria, including angioneurotic edema, from certain foods often come from families which present the same peculiarities. We are justified in the statement that in such subjects there is a true diathesis. In modern parlance their "plasma colloids are unstable and disposed to colloidoclastic shock." It is common experience that a small dose of serum is apt to induce colloidal shock in any of these subjects. The antigen in these cases need not be of protein nature at all, for the intravenous injection of a small amount of isotonic saline infusion is sufficient to provoke a severe colloidal shock. Here the predisposition is everything.

In these subjects an antecedent sensibilization is not always necessary. Asthma, Quincke's disease, etc., are not of necessity anaphylactic phenomena at all. Given a sufficient degree of colloidal instability, colloidal shock can occur from a variety of causes which do not depend on the mechanisms of sensibilization and anaphylaxis. In the clinic it is often extremely difficult to discriminate between an idiosyncrasy and an anaphylaxis. In theory the two sets of phenomena do not exclude each other, but just the reverse. The subject, with inborn, perhaps inherited colloidal instability, should become easily sensibilized to various antigens, while at the same time other causes in the absence of sensibilization should be able to provoke phenomena of the nature of pure idiosyncrasy. That this is what actually occurs is well shown in an article by Widal, Abrami, and Leromeyez in *La Presse Médicale* for March 4, 1922, xxx, 18, from which we have abstracted the above presentation of the subject. The subject was a woman of thirty-nine who had been free from ailments until the age of twenty-eight. She then developed paroxysms of urticaria, spasmodic coryza, and asthma, suggesting the diathesis of colloidal instability. It was also found that she had idiosyncrasies toward aspirin and antipyrin. The simple act of chilling was enough to induce paroxysms of the affections mentioned, while food of all kinds gave negative results. Pollens were able to produce the coryza and asthma when rubbed into the abraded skin. In all positive results the blood showed the hemoclastic shock. Aspirin could provoke all three of the clinical behaviors as could also antipyrin, both by ingestion and cutireaction. In a patient of this type it is difficult to decide as to the possibility of early sensibilization to cold, pol-

lens, and drugs, but the latter hardly stands to reason. The authors succeeded in desensibilizing the woman to aspirin, but this is no certain demonstration of an anaphylaxis. They were entirely unable to relieve her of the hay fever, asthma, and urticaria, by any of the antianaphylactic resources.

SYPHILIS, ANCIENT AND MODERN, IN PERSIA.

THAT syphilis has existed from the earliest times in Asia is an old belief which some modern controversialists like Bloch have vainly attempted to discredit. Internal evidence, such as vernacular terms for various ailments, seems to show that there have always been in use certain designations. Even if the diseases themselves are new, the names, as applied to diseases, are old. With these names may be associated certain beliefs, folk-lore, etc., showing a common suggestiveness among ancient and modern peoples. There are also archeological evidence of excavation finds. Dr. Christidi of Constantinople, who has studied syphilis and leprosy among the Persians (*La Presse Médical*, March 15, 1922, xxx, 21) believes that the former has prevailed in that country, like leprosy, from very early times, at least as far back as the days of the Phœnician merchants, who, as the only commercial travelers of the period, were able to disseminate the infection. There is an ancient Persian anathema, "kouft," equivalent to our "pox" and similar expletives, which, as the native word for syphilis, speaks volumes. The collections of old terra cotta in Persia—images with certain inscriptions—speak for the existence of a disease with such symptoms as sore mouth, snuffles, severe headache, etc. These exhibits the author has personally studied. Moreover, there was confusion between syphilis and leprosy, as happened also in medieval Europe. Some descriptions of leprosy apply clearly to both diseases. The same confusion exists to-day in the minds of the empiric physicians of Persia. The author cites a very ancient manuscript, the source of which is not stated, save that the original antedates the Christian era by several centuries. The manuscript of the present day is a copy in Arabic which goes by the name of the "Bouquet of Medicine." It speaks of two forms of leprosy, one acute and contagious in evolution, the other much more chronic and but slightly contagious. The acute contagious form answers to syphilis.

Persian syphilis, considering that there is no evidence of any common successful plan of treatment, is on the whole relatively benign. If this was not originally the case—and the use of the expletive "kouft" would seem to indicate that it was once a scourge—it has evidently become so through saturation of generations of Persians. Mercury is in use to-day, and has been for years past, but not treatment as we understand the term. To-day only one in fifty gets prolonged and thorough medication. Innocent transmission is very common, just as in Russia. When a European contracts the disease from a Persian woman the course is usually benign. The author noted some severe cases of the disease in which the woman in the case was not a Persian and in two of these cases paresis developed. The nationality of these foreign women is not stated. The author saw at least 3000 cases of syphilis in Persia, and in general Persian syphilis sufficiently resembles the European, with some notable differences. He saw no metasyphilis in native Persians, but, singular to relate, there seemed to be a well-defined syphilitic epilepsy which was present in hereditary cases and most commonly in women.

PSYCHICAL AND PHYSICAL CONCEPTIONS OF SEXUALITY.

AT first sight the hormonic factor in normal sexuality seems to exclude the possibility of a purely psychogenic motivation of abnormal and excessive sexuality. Stekel in the preface of one of his books implies that Steinach's discoveries have in no wise disturbed his faith in psychically motivated sexuality. The views of Steinach seem at first to exclude those of Freud and his school, and vice versa; for the Freudians insist on infantile sexuality, and according to the hormonic view this is an impossibility. Steinach through his operating surgeons claims to have cured homosexuality by testicular grafting alone, on the basis that the gonads of the homosexual are lacking in the testicular hormone; Stekel claims to have made the same cures through psychotherapy alone. A connecting link between the two schools is seen in the high-class castrate, who appears to retain his sexuality through his original mental constitution. It is assumed that this negative result of castration is most likely to be encountered in late castrates, in whom normal sexuality had long been established, and it is further held that it is only a matter of time before the original sexuality must disappear. Another argument in favor of the cerebral theory is the fact that men of normal sexuality occasionally lead abnormal sexual lives. A third argument for the prominence of the cerebral component is seen in the pseudohermaphrodite. Most of these are sexually male, yet we find that psychically either sex may be represented, depending largely on the manner of raising. Even in animal experiments there may be exceptional behavior, male castrates continuing for a time at least to behave like intact males. Evidently the cerebral or psychical component in sexuality must always be borne in mind in the individual case. This has been apparent since the earliest times, for the mere removal of the testicles evolved into the so-called total castration in which the penis was also removed.

The homosexual or invert possesses a mental makeup in which the attitude toward sex is only a detail. In an article by Schwartz in the *Wiener klinische Wochenschrift* for March 10, 1922, xxxv, 11, attention is called to the inferiority complex in this class of subjects which leads to defense reac-

tions of various kinds. Along with an exaggerated ambition, he exhibits an extraordinary degree of prudence and timidity, extending to all relations of life. If this is the key note of the character of the so-called homosexual, much else in his make-up could be deduced therefrom. He would have the motive for a bachelor existence and with his peculiar inhibitions in sexual directions would preserve his infantile sexuality.

Pesticemia.

As is well known, there are several distinct clinical forms of bubonic plague, the nomenclature of which is susceptible of improvement. In the ordinary bubonic form there is a secondary septicemia and secondary pneumonia, and the primary pneumonic form is associated with hemic infection, while finally there is a pure primary septicemia. The use by Brazilian authors of the term "pesticemia" is not a pure instance of word coinage but a legitimate contraction of pestous or plague septicemia. In the *Brazil-Medico* for February 11, 1922, xxxvi, i, 6, is found an article by Gonzaga on hemoculture in the forms of the bubonic-pneumonic plague based on the study of 163 cases interned in the Isolation Hospital of the Oswaldo Cruz Institute. Numerous photographs give the reader an idea of the appearance of the inguinal buboes. Victims of the disease are photographed, at times in standing position, and apparently in good general condition, while at the same time presenting huge masses of enlarged glands. In such cases hemoculture should in theory be negative. Nevertheless, in a case of this type in which recovery occurred in a short time inoculation of guinea-pigs with the patient's blood caused the entire picture of experimental plague. In this class of case there were recovered from the blood vacuolated gram-negative coccobacilli, but the author does not straightway term that Yersin's bacilli, the latter being recovered in typical form, however, from the inoculated guinea-pigs. The purpose of the paper seems largely to point out the omnipresence of blood infection in all cases, mild and semibenign bubonic types included. This gives us the right to speak of one grand basic condition common to all forms which may be termed pesticemia. This word has also a distinct advantage over septicemia, because the latter connotes a malignant clinical condition. The objection to it is that it is barbarous in composition, being of mixed Latin and Greek derivation.

Large Doses of Potassium Chloride in the Treatment of Acute Renal Dropsy.

Potassium chloride is hardly ever mentioned specifically, either under therapeutics or toxicology. In theory if sodium chloride will cause edema in a nephritic it might be possible for a potassium salt by expelling the sodium salt from the body to antagonize this action. Moreover, in the diabetic at least, large doses of sodium carbonate will cause edema. Professor Blum of Strassbourg recently conceived the idea that retention of the sodium ion is responsible for the edema and that potassium might cause its elimination. He first tested the potassium chloride to determine the limits, if any, of tolerance; and found that as much as 20 grams daily produced no ill effects. However, prolonged use, even of much smaller doses, gives rise to colicky pain and diarrhea, and eventually to potassium poisoning of the heart muscle, indicated by low tension pulse, cyanosis, and dyspnea. This salt is therefore never to be thought of at all in cardiac dropsy. In the renal type some brilliant results seem to have been obtained, although no particulars are available. We know of Blum in this connection only through an article by Mauriac and Damade in the *Gazette hebdomadaire des sciences médicales de Bordeaux*, March 10, 1922, xliii, 12. The authors report a case of acute nephritis with edema in an elderly man, which proved rebellious to all ordinary measures. There was a degree of nitrogen retention which gave a gloomy prognosis. Professor Arnozan determined to test Blum's treatment and administered 3 grams of potassium chloride daily, increasing gradually to 10 grams. The treatment was maintained for two months and at present the patient is in fair condition and improving. His blood urea has dropped from over 5 grams per liter to 0.68 gram. No ill effects of the potassium are mentioned, and at last accounts the patient was eliminating 11 grams of sodium chloride daily.

Nitrogen Retention and Acidosis in Mental Confusion.

Studies of metabolism in the mental patient are not numerous. In the epileptic we find an exception to this statement, and a special line of study has appeared in the mental aberrations of the uremic subject, including the period of preuremia. Circular insanity has in some cases been associated with retention of nitrogen from renal insufficiency. Targowla reports a case (*La Presse Médicale*, March 15, 1922, xxx, 21) of a woman with intermittent insanity of the confusional type with maniacal behavior, passing later, after internment, into anxious melancholia, with recovery at the end of two months. Four years later she was readmitted with the same psychosis, and for the third time after a period of two more years. On this last occasion some studies of metabolism were made and the finds comprised acetonuria and slight nitrogen retention. A fortnight after admission she was in the anxiety phase with delusions of persecution, based in part on auditory hallucinations. The acetonuria and nitrogen retention had by this time disappeared, preceding the period of recovery. Apparently these metabolic anomalies coincided with the phase of disorientation, maniacal excitement, agitation, insomnia, etc. The case would of itself mean little, but examination of other patients with intermittent insanity showed a similar behavior of metabolism. The coexistence of acetonuria, urobiluria and slight nitrogen retention appeared to point to hepatic insufficiency as concerned in the production of the psychotic crises. In some of these cases the kidneys seemed to be insufficient, but there was no approximation to the mental aberrations of Bright's disease. On the other hand, there may have been some affinity with the delirium of acute infectious diseases.

Theft As An Initial Symptom of Paresis.

Criminal acts are often the means of revealing incipient paresis, for people of excellent reputation may commit statutory offenses which lead to a mental examination. While sexual offenses, especially against children, are first to be thought of in this connection, any criminal behavior may be in evidence save perhaps such as requires great strength or deliberate planning or in general the use of such faculties as suffer notably in this disease. In *La Presse Médicale* for March 1, 1922, xxx, 17, Vallon of Toulouse mentions the case of a woman of 39, caught squarely in the act of shoplifting. She was sent to prison for two months and on being released went direct to the same establishment and was caught a second time. The tribunal then had her case examined into. She gave a history of loss of consciousness at the funeral of her husband several years before and afterwards menstrual vertigo. There was no further history. She seemed robust in general but the pupils were sluggish. Speech defects could be partly explained by her loss of teeth. The intelligence and even the moral sense seemed intact to tests. There was a euphoria which seemed quite out of place under the circumstances. She explained her thefts by stating that she was absent minded, in a sort of automatic state. Vallon as expert attributed the thefts to the euphoric mental state, which is favorable to irresponsibility of conduct; such pathological happiness making one more or less indifferent to consequences. He had the patient interned for observation and in a month a picture of beginning paresis was partly evident—slurring speech, and exaggeration of reflexes; while lumbar puncture showed an abundant lymphocytosis and a positive Wassermann. Alteration of the moral sense at the début of this disease appears to be a consequence of circulatory disturbance in the cortex preceding the development of meningoencephalitis.

The Evolution of Rejuvenation Experiments.

This subject belongs essentially to experimental biology and it is, therefore, possible to discuss it without allusion to work on mankind undertaken from a purely therapeutic viewpoint. The starting point is usually the work of Brown-Séquard, but that scientist had no intimation of the existence of the endocrine portion of the male gland. Credit for the discovery of the interstitial endocrine gland of the testicle is unanimously awarded to Ancel and Bouin in 1903-4. In addition, these biologists, whose articles appeared in the *Archives experimentales de zoologie*, practised ligation of the vas deferens and noted that it was followed by hypertrophy of the interstitial gland. Resection of the vas had the same result. Steinach has recently given to Ancel and Bouin full credit for priority, and apparently likewise for supplying him with his original idea of rejuvenation in rats by vas ligation. He has also been able to study the results of the work of Voronoff and Retterer upon aged rams and he-goats, which consists entirely of grafting. Steinach's work in the latter field is now well known, including his grafts upon intact males and females. The same investigator's work in cross-grafting of gonads led him to attempt the cure of homosexual males in the same manner. Americans have from the first worked only on mankind and without any basis of animal experiment; and their work involved simple grafting in castrates. Nathan, who supplies this analysis to *La Presse Médicale* for March 18, 1922, xxx, 22, adds that recently Sand of Copenhagen obtained a remarkable degree of regeneration of an aged hunting dog by vas ligation, the animal having recovered its hearing, smell, and genital sense.

Sequelæ of Epidemic Encephalitis.

That epidemic encephalitis is proving a potent cause of chronic nervous affections is becoming more and more apparent from day to day, a fact which should make the practitioner very cautious in his prognoses. These sequelæ show much polymorphism. At a recent session of the Paris Neurological Society (*Le Bulletin Médical*, February 15-18, 1922, xxxvi, 8) Souques presented one patient and related a second case in which lethargic encephalitis had first been followed by hemimyoclonus, which, however, had been succeeded by a parkinsonian tremor without pyramidal signs of any kind. Apparently these are the first of the kind to be recorded. Whether the cloni and tremor arose from one and the same lesion or two separate ones is not apparent. Marie presented two patients in which a post-encephalitic parkinsonian syndrome was accompanied by palilalia, one patient repeating the same word as often as twenty-one times. This behavior was also the first of the kind noted after this illness. Claude stated that one of these patients had first presented a tachyphemia, or rapid acceleration of speech and Babinski observed that both speech defects stood in some relationship with the mutism shown by some parkinsonians, and with a form of dysarthria seen by Meige and himself. Babinski had seen one patient who showed at different times both mutism and palilalia. All of these speech defects doubtless have a common origin. In ordinary quiet and formal conversation they are not pronounced, but become so when the subject is excited or angry. Bollack showed a boy who had recovered from ocular paralyses and whose features were mobile; but induced tests showed that associated movements to the left were restricted, with complete paralysis of convergence.

Sokosho, not Sodoku.

In 1911 Frugoni of Florence made the profession of Europe acquainted with the existence of malady new to it, but long known in Japan. He recognized the presence of a case of ratbite fever in Italy, and from that moment other Occidental cases were recognized and published. The name of the new disease went on record as "sodoku" with an etymology of *so*, rat, and *doku*, poison. This spelling and derivation have remained unchallenged until very recently. Dr. Kagawa of Tokio has written a letter to the *Progrès Médical* which appears in the issue of February 25, 1922, l, 8, in which he has tried to put the Westerners right. The word *sodoku* really exists, he says, but it is a Chinese medical term. Dr. Kagawa does not tell us anything more of it. But

in Japan, where the disease was first described, the word *sokosho* is the descriptive name, from *so*, rat, *ko*, bite, and *sho*, malady. The symptoms of the affection are sufficiently well known, but it is not yet common knowledge that sokosho has been proved to be a spirochetosis, due to an organism known as *Spirocheta morsus muris*. For a long time there was much uncertainty as to the exact cause, several spirochetes as well as other microorganisms having been accused. Kakawa says, however, that Professor Ishihara has settled the matter definitely by isolating and cultivating the germ, and reproducing the disease in a number of laboratory animals. The disease yields readily to old salvarsan. The bite of the cat is often followed by a disease quite like sokosho, but the question of absolute identity has not yet been settled.

News of the Week.

Bubonic Plague in the Near East.—According to a statement issued by Dr. Rupert Blue, in charge of the United States immigration service in Europe, following a trip of inspection, virtually every port in the Near East is infected with bubonic plague, cholera or smallpox. He added that the United States would be threatened if any of the disease infected immigrants reaching these ports were allowed to embark for the United States. Disinfection and delousing facilities are either inadequate or do not exist at all.

Will Transfer Soldiers' Hospital.—Fifty-seven public health service hospitals treating disabled soldiers, are to be transferred to the Veterans' Bureau by executive order, effective May 1.

Workman's Compensation Law Amended.—Governor Miller has signed the Knight bill, completely revising the New York State Workmen's Compensation law. One of the most important amendments under the new law is the elimination of the sixty-day limitation for medical treatment of injured workmen, and a requirement that the employer furnish to his injured employee medical care and treatment for as long a time as the nature of the injury requires. At the same time under the amendment the employer is protected by the fact that every physician must report to the employer within twenty days the facts as to the nature of the injury and treatment of an employee. Definite provision also is made for the payment of compensation for 150 weeks for the loss of hearing. The old law made no such provision. The list of occupational diseases included in the law has been enlarged by the addition of diseases not heretofore named, and procedure in relation to proving a claim for an occupational disease has been greatly simplified. Failure to insure the compensation of employee is definitely defined to be punishable by a fine of $500, or by imprisonment for a year, and the procedure for compelling employers to insure is greatly simplified. Another important amendment is that which places upon a contractor the liability for the compensation for an injured employee of any sub-contractor unless the main contractor sees to it that the sub-contractor carries compensation insurance. A number of other changes have been made which greatly simplify the operation of the law and which insure against wastefulness and extravagance in its administration.

State Aid for Disabled Veterans.—Governor Miller has signed the bill appropriating $1,000,000 for disabled veterans, and the board will begin distributing the funds immediately. Application blanks can be obtained from deputies in each Assembly district, who will also make payments. There will be an examining physician in each district who will receive $3 for each examination.

Two Child Welfare Bills Become Law.—Governor Miller has signed the two bills carrying out the recommendations in his annual message for the care of children. One provides for an extension of the powers of the county boards of children welfare and the other establishes children's courts in accordance with a constitutional amendment approved by the people at the election last autumn. The first bill transfers to child welfare boards the jurisdiction of poor officers over dependent children. It is permissive. Under the second bill the County Judge is made the Judge of the children's court in each county in which the County Judge and Board of Supervisors certify that he is able to discharge the duties of the office.

The Framingham Tuberculosis Experiment.—The Committee of National Tuberculosis Association which has supervised the experiment carried out in Framingham, Mass., to demonstrate the possibilities of controlling tuberculosis in an industrial community, has published eight monographs explaining the different stages of this work. The work was commenced in 1916 and was financed by the Metropolitan Life Insurance Company. At the end of five years the death rate from tuberculosis alone in this community of 18,000 population has dropped 67 per cent. The inhabitants have established public health clinics and school clinics, and, through various precautionary measures for safeguarding health, infant mortality has been lowered 22 per cent. From 121 per 10,000, an average for ten years preceding the experiment, it has dropped to 40 per 10,000 in 1921. This rate of decrease is lower than any hitherto reported in any known community in the world. Practically two-thirds of total population of Framingham have been given a thorough medical examination. During the first year of the work examination of tuberculous individuals showed that 45 per cent. of the cases were in the early stages and that 55 per cent. were in advanced stages. At the end of five years examinations of suspected cases showed that 83 per cent. were in the early stages. In the opinion of Dr. Livingston Farrand, the work of the committee has proved conclusively that tuberculosis is a controllable disease.

Relations Between Industries and Health.—Harvard University, through the Division of Industrial Hygiene, which is a part of the new School of Public Health, is making a series of studies of the health hazards of industry, to accumlate fundamental facts on the relation between industrial jobs and ill-health which may prove useful in the prevention of disease. The aim of these investigations, which are still in their early stages, is to collect definite scientific information which may ultimately make it possible to

determine just how harmful to the human system any given kind of dust is, and whether the amount of such dust in any given factory or mine is sufficient to endanger the health of the workers. Meanwhile, at the Massachusetts General Hospital, members of the Division of Industrial Hygiene are operating an industrial clinic in which they study cases of industrial toxications, poisoning inhalation of dust, fatigue of special groups of muscles, and other kinds of cases as they come into the hospital. The division has also been studying the health of employees in 25 department stores in Boston, New York and other cities, and on the basis of this study has advised these stores about methods of protecting the health of their employees.

The Bowling Green Neighborhood Association, which cares for children, providing playgrounds and recreation, and aims to better health conditions in general in the Bowling Green section of New York, recently held its first annual dinner. Dr. Hermann M. Biggs, State Health Commissioner, was the guest of honor. In his address he stated that tuberculosis in the Bowling Green section was worse than in war-ravaged Serbia. Deaths were fifty times greater than in the Central Park residential section.

The Homeopathic Medical Society of the State of New York, which held its seventieth annual meeting in New York City during the week of April 10, voted to confer with the Homeopathic Societies of New England and the Eastern Atlantic States with a view to the formation of an Eastern Homeopathic Association. The purpose will be to bring together all Eastern homeopathic physicians for scientific research. The society passed a resolution asking Governor Miller to veto the Knight mental defective bill, described as a measure that would give any citizen the right to commit a minor on demand pending a medical examination.

Drug Addiction Increasing.—According to a statement made by Bird S. Coler, Commissioner of Public Welfare, all the seeming good which was to be derived from the passage of the Volstead act has passed away and that the outlook for increased dependencies of every kind is growing most alarmingly. The Commissioner said that while the alcoholic wards were practically abandoned in the early part of 1919, their activity at present is greater than it was prior to the passage of the Eighteenth Amendment. Drug addicts, he reports, are growing more numerous all the time and more vicious as well. If the Government had been sincere in the effort to enforce prohibition and to release spirituous liquor for medicinal purposes only, it would have inquired from health departments, welfare departments, and medical societies what amount of liquor is necessary for medicinal purposes. In all the hospitals and dispensaries operated by the City of New York less than 700 gallons a year are used.

Mental Defectives Measure Vetoed.—Governor Miller on April 15 vetoed the Knight mental deficiency measure, which would have made it easy to commit a person who apparently was a mental defective. Of the bill Governor Miller wrote in a memorandum: "This measure is the result of the experience and the study of the State Commission for Mental Defectives and of others who have devoted earnest thought to the problem. It is unquestionably a decided improvement in many important respects upon the present law, but contains some important provisions of doubtful import and of uncertain operation. No doubt the present provisions of law for the commitment of mental defectives are inadequate, but the power to deprive an individual of his liberty for an indefinite period on a finding by a magistrate that he is apparently a mental defective should certainly be most carefully guarded, if it is to be conferred at all."

Hospital Notes.—The United States Government has purchased the property of Mrs. A. W. Church, near Port Chester, N. Y., as a site for a hospital for the treatment of tuberculous veterans. The site consists of about 100 acres and it is hoped to have the new buildings ready for occupancy in six or eight months.

The Bronx General Hospital, officially known as United States Veterans' Hospital No. 83, has been officially opened. This is a plant which was purchased ready built at a cost of $2,000,000 and remodeled by the Government at an added expense of several hundred thousand dollars.

A mammoth exposition is to be held in Madison Square Garden, New York, May 8-13, to raise funds toward the maintenance of the Masonic Memorial Hospital at Utica, N. Y., which was recently completed at a cost of $1,000,000. A fund of $125,000 will be required yearly for the next five years for maintenance when the endowment fund will be ample to cover its operation.

The hospital for the tuberculous of Bergen County, N. J., was opened to public inspection on April 1. This new institution has cost over $400,000.

Additions are soon to be built to the Middletown (Ohio) Hospital, for which a sum of $155,000 has been appropriated.

The commissioners of Hennepin County, Minn., have passed a resolution to issue $500,000 in bonds to raise money for doubling the capacity of the Glen Lake Sanatorium. When the contemplated addition is completed the institution will be prepared to care for 500 patients.

Dr. T. E. Teah formally opened his private hospital in Williamsport, Pa., on April 1.

A contract for an addition to St. Joseph's Hospital, St. Louis, Mo., has been awarded. When the new addition is completed the hospital will have accommodations for 150 beds.

The hospital for tuberculous ex-service men of New York State, to be constructed by the Veterans' Bureau, will be either at Otisville or Liberty, Sullivan County. Each place is offering inducements to get the institution, which will be a permanent hospital used for the ex-service men as long as needed and thereafter as a hospital for tuberculous patients.

Plans for a $3,000,000 Methodist Episcopal sanatorium in Colorado Springs have been about completed. Bids for the first unit, to cost $250,000, will be opened in May.

A new Catholic hospital was recently dedicated at Bend, Ore.

A committee has been organized and a campaign started to raise funds for a hospital to be known as the Mt. Mercy Hospital, near Cazenovia Park, Buffalo, N. Y.

Gifts and Bequests.—By the will of Morris Freudenheimer of Yonkers, N. Y., Lebanon and Beth Israel Hospitals, New York, each receive $1,000. The St. John's Riverside Hospital in Yonkers received $600.

Dr. George A. Ohl, Jr., has donated $100,000 in cash for an orthopedic hospital in Newark, N. J. He has offered as a site for the hospital the Ohl homestead at 171 Washington Avenue, valued at $50,000. The provisions under which the gift is made require that the hospital be self-supporting and that it be under the guidance of Dr. Adolph Lorenz. It is in memory of Mr. Ohl's mother, Catherine Ohl, and will be named for her.

Medical Society Elections. — THE HARTFORD COUNTY (CONN.) MEDICAL ASSOCIATION, at its annual meeting held in Hartford, April 5, 1922, elected the following officers for the ensuing year: *President*, Dr. Edward R. Lampson; *Vice-President*, Arthur S. Brackett, Bristol; *Secretary-Treasurer*, Anthony W. Branon, Hartford; *Censor*, Arthur B. Landry, Hartford.

THE LIMESTONE COUNTY (TEX.) MEDICAL ASSOCIATION, at its meeting held in Mexia, April 5, 1922, elected the following officers for the ensuing year: *President*, Dr. R. B. Jackson; *Secretary*, Dr. W. W. Shirri.

THE GASTROENTEROLOGICAL SOCIETY OF CUBA.— On January 20 there was founded in Havana the Sociedad Cubana de Gastro-Enterologia, and at the election held March 13 the following officers were elected: *President*, Dr. F. Grande Rossi; *Vice-President*, Dr. F. Torralbas; *Secretary*, Dr. F. Solano Ramos; *Vice-Secretary*, Dr. Pedro Barillas.

Obituary Notes. — Dr. MILTON C. SPRAGUE of Summerford, Ohio, a graduate of the Cincinnati Medical College in 1873, died on March 24, at the age of seventy-three years.

Dr. AGNES SPARKS of Brooklyn, New York, died on April 15 at the age of 70 years. She was born in Canandaigua, N. Y., and was graduated from the Stanford Medical College, California, in 1880. She practised medicine for forty years in Brooklyn, and was the first woman member of the Kings County Medical Society.

Dr. GLOVER BROWN WILCOX of San Francisco, Cal., died of pneumonia on March 13, at the age of forty-four years. He was graduated from the University of Southern California Medical Department, Los Angeles, in 1908.

Dr. ONNIE L. DEADWYLER of Carlton, Ga., was almost instantly killed in an automobile accident near Athens, on March 18. He was graduated from the University of Georgia Medical Department, Augusta, in 1892, and was fifty-two years of age at the time of his death.

Dr. GEORGE MACMURPHY of Ortonville, Minn., a graduate of Bellevue Hospital Medical College in 1878, died following a stroke of paralysis on March 10, at the age of seventy years.

Dr. CORYDON P. GOWMAN, a graduate of the Detroit College of Medicine and Surgery in 1893, and a former resident of Detroit, died at Mt. Airy, Md., on March 26, at the age of sixty-one years.

Dr. CHARLES A. GRISWOLD of New London, Conn., a graduate of the College of Physicians and Surgeons, New York, in 1856, and a surgeon in the Civil War, died in a local hospital on March 30, at the age of ninety-one years.

Dr. JAMES RUFUS BIRD of Brooklyn, N. Y., a graduate of the College of Physicians and Surgeons, New York, in 1858 and consulting physician to St. John's Hospital, died on March 28, at the age of eighty-seven years.

Dr. NELSON STILES of Wichita, Kan., formerly of Medford, Okla., died on March 21, at the age of sixty-eight years. He was graduated from the College of Physicians and Surgeons, Baltimore, in 1882.

Dr. J. ENDICOTT CHAPIN of Red Wood, Cal., died suddenly on March 24, at the age of fifty-one years. He was graduated from the Washington University Medical School, St. Louis, Mo., in 1909.

Dr. WESLEY ASBURY RAPE of Victoria, Tex., a graduate of the Washington University Medical School, St. Louis, in 1887, died in a Cuero hospital on March 27, at the age of fifty-six years.

Dr. LEWES D. WILSON, a graduate of the Washington University School of Medicine, in 1888 and of the Hahnemann Medical Institute of Philadelphia in 1891, died of heart disease at his home in Washington, D. C., on March 30, at the age of fifty-six years.

Dr. I. N. B. SPENCE of Social Circle, Ga., died on March 23, at the age of seventy-two years. He was graduated from the University of Georgia Medical School, Augusta, in 1877.

Dr. ELMER EUGENE MORGAN of Fort Wayne, Ind., died on March 23, at the age of sixty years. He was graduated from Rush Medical College, Chicago, in 1892. He was a fellow of the American Medical Association, treasurer of the Allen County Medical Society, and counsellor for the twelfth district Medical Society for many years.

Dr. HENRY B. THOMAS of Baltimore, Md., died on April 2, at the age of fifty-seven years. He was graduate from the University of Maryland College of Medicine, Baltimore, in 1888. He was a member of the American Medical Association, and was connected with the Union Memorial Hospital, the Women's Hospital, the University Hospital, Mercy Hospital and the Presbyterian Eye, Ear, and Throat Hospital.

Dr. JOHN S. PHILLIPS of Allegheny, Pa., died following an operation on March 30, at the age of seventy years. He was graduated from the Miami Medical College, in 1876. He was a member of the Allegheny County Medical Society and a Fellow of the American Medical Association.

Dr. PRESTON E. WADDELL of Natchitoches, La., a graduate of Tulane University, New Orleans, in 1895, died on April 1, after a lingering illness, at the age of sixty-one years.

Dr. LABAN T. BREMERMAN of Downington, Pa., died from paralysis at West Chester Hospital on March 31, at the age of seventy-two years. He was graduated from George Washington University. School of Medicine, St. Louis, in 1874. He was President of the local School Board and for twenty-five years had been Burgess of Downington.

Dr. OAN J. THOMPSON died at Reading, Pa., on April 1, at the age of fifty-one years. He was

graduated from Jefferson Medical College in 1895. He was Past Grand Commander of the Knights of Friendship of Pennsylvania.

Dr. M. HENRY GREEN died at Philadelphia on April 6 at the age of seventy-six years. He was graduated from Jefferson Medical College in 1882.

Dr. HENRY ETTINGER of New York, a graduate of Bellevue Hospital Medical College in 1890, and a Fellow of the American Medical Association, died on April 8, at the age of sixty-two years.

Dr. GEORGE LOVE of Waukesha, Wis., died on March 31 at the age of fifty-five years. He was graduated from the Northwestern University Medical School in 1894. He formerly resided in Pewaukee where he was health officer for a number of years.

Dr. CHARLES M. WILSON of Gouverneur, N. Y., a graduate of Bellevue Hospital Medical College in 1871, died at the home of a relative at Fort Atkinson, Wis., on April 4, at the age of seventy-seven years.

Dr. HERMAN G. KLIPPERT of New York, a graduate of the College of Physicians and Surgeons, New York, in 1889, died suddenly on April 1, at the age of fifty-six years. He was a Fellow of the American Medical Association and a member of the County and State Medical Societies, and of the American Medico-Pharmaceutical League.

Dr. JOHN D. SLAYDEN, a graduate of Jefferson Medical College, Philadelphia, in 1869, and a Fellow of the American Medical Association, died at his home in Clarksville, Tenn., on March 26, at the age of eighty-one years.

Dr. FRANK C. JONES of Los Angeles, Cal., died suddenly on March 22, at the age of seventy-five years. He was graduated from the University of Michigan Medical Department, Ann Arbor, in 1880.

Dr. HANNAH C. G. KINDBOM died of paralysis at Philadelphia on March 19, at the age of fifty-one years. She was graduated from the Woman's Medical College of Pennsylvania in 1910. She was a member of the Philadelphia County Medical Society, the Philadelphia Pediatric Society, the Medical Society of the State of Pennsylvania, and a Fellow of the American Medical Association.

Dr. JEROME LEVIS PYLE of Gradyville, Pa., died on March 22, at the age of sixty-five years. He was graduated from Jefferson Medical College in 1885.

Dr. DAVID G. WILLETTS, a surgeon of the United State Public Health Service, died in the hospital at Smith's Landing, N. J., on March 26, at the age of forty-nine years. He was graduated from the George Washington University Medical School of Washington D. C., in 1907.

Dr. HOMER BRANDEL SMITH of Lancaster, N. H., died of diphtheria on March 27, at the age of forty-four years. He was graduated from Harvard Medical College in 1903. During the war he was placed in charge of Base Hospital No. 51 overseas and retired from the service with the rank of Lieutenant-Colonel.

Dr. IGNATIUS WALTHALL POWELL of St. Louis, Mo., a graduate of Barnes Medical College, St. Louis, in 1907, died on pneumonia on April 6. He was formerly assistant police surgeon, and was a Fellow of the American Medical Association.

Dr. GEORGE W. HEINITSH of Spartanburg, S. C., died after a lingering illness on April 5, at the age of sixty-three years. He was graduated from Jefferson Medical College in 1879.

Dr. HENRY HAMILTON DEANE of Watertown, N. Y., died after a lingering illness on April 10. at the age of seventy-two years. He was graduated from the University of Vermont College of Medicine, Burlington, in 1876, and was a former president and for ten years secretary of the Jefferson County Medical Society. He was for ten years health officer of the city of Watertown.

Dr. JEPTHA W. SCHURMAN of Detroit, a graduate of the Detroit College of Medicine and Surgery in 1907, died on April 7, at the age of forty-three years. He was a member of the American Medical Association, Wayne County Medical Society, Detroit Otolaryngological Society, Trudeau Society, and was a member of the staff of Providence Hospital.

Dr. JOHN S. HOLLINGSWORTH of Indianapolis. Ind., a graduate of the Indiana Medical College, in 1893, died as the result of injuries received in an automobile accident, on April 5, at the age of fifty-seven years.

Obituary.

EDWARD KELLOGG DUNHAM, M.D.,

NEW YORK.

Dr. EDWARD KELLOGG DUNHAM of New York died suddenly of angina pectoris on April 15 at the age of sixty-two years. He was born in Newburgh, was graduated from Columbia University in 1881, and from the Harvard Medical School in 1886. He studied bacteriology under Koch, and early in his career was bacteriologist to the Massachusetts Board of Health. He was professor of pathology at Bellevue Hospital Medical College from 1898 to 1907. Dr. Dunham was a member of the New York Academy of Sciences, of the American Chemical Society, of the American Pathological and Bacteriological Society, of the New York Academy of Medicine, of the Societies of the County and of the State of New York, and of the American Medical Association. During the World War he was a Major in the Medical Corps of the Army, and at the time of his death was nearing the end of an exhaustive study of the causes of empyema based on his experience in army camps.

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Correspondence.

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, March 29, 1922.

Women Students in the Hospitals.—It seems now that the question as to whether women should be allowed to study at the hospitals side by side with men does not rest altogether with the hospital authorities. At any rate, it appears that in London the matter is by no means settled. For instance, one important point has not been raised in the controversy brought about by the decision of the London Hospital, that immense institution in the East End of London, to exclude women medicals in the future. It may be stated that during the coming year the London Hospital will receive an additional grant from the London University Grants Committee of £3,000, which added to the £7,000 grant already made and a special grant of £6,000 for their clinical units, makes a total of £16,000 for the session from the Government. It may be pointed out that this is public money contributed to the London Hospital Medical College for the purpose of medical education. Moreover, public money is contributed by the women as well as by the men of the country. There is only one hospital medical school in London which has steadily refused to accept a Government grant precisely in order to maintain a complete freedom of policy, and has never opened its doors to women students. But the London Hospital is in quite a different situation, and in this instance, two separate questions are raised, one of policy on its merits, the other of the hospital's public obligation, due to its being up to a point, a trustee for public money. A correspondent in the Observer recently drew attention to these facts and said that it is hard to escape the conviction that the London Hospital is endeavoring to ride two horses. It is accepting public money and at the same time discriminating against one section of the public which contributes this money. The answer may be that the Treasury grant is made unconditionally, and if taxed on this subject the University Grants Committee would no doubt and with reason, put up the defence that the £16,000 were paid to the London Hospital for the encouragement of medical education, and that it was left to the authorities of the hospital to decide how the money could best be used in the public interest. But if on the other hand, the question were raised in the House of Commons it would be found that a good departmental defence is not necessarily a convincing parliamentary defence. Of course, the end of the matter has not been heard. However, after all, the question is not a legal one. The point is, whether it is to the best interests of all concerned, including the public, that women and men should study medicine together. Opinions here differ so widely on the subject that it appears impossible to come to a decision. As usual in this country, the debatable points are being thoroughly threshed out in the lay as well as in the medical press. As a rule, indeed almost without exception women writers, and these are numerous, insist that women should be allowed all the privileges possessed by men medical students. If they desire to work with men they have a right to do so. Men writers to the press incline to the view that it is injudicious that women and men should work in the same medical schools and hospitals. The pros and cons are many but in the existing financial plight of the hospitals it would appear more reasonable perhaps to shelve the question until these institutions have been placed on a firm basis. It would be interesting to know what is thought of medical coeducation in America, although coeducation in medicine differs in some important respects from coeducation when young, in that students of medicine are adults and presumably have reached the age of discretion.

Large Bequest to King Edward's Hospital Fund for London.—The London hospitals will benefit to the amount of £400,000 by the will of Sir Thomas Sutherland, late chairman of the Peninsular and Oriental Steam Navigation Company, who died on January 1 last, leaving property of the gross value of £723,075.

London University College Annual Report.—The London University College Report for 1920-1921 shows that the total number of students enrolled was 3,143, of whom 1,308 were women. It was a crowded year in many senses. The new building for anatomy provided by the Rockefeller gift of a million and a quarter for medical education was begun and is expected to be finished by March, 1923.

Committee on Light.—The Medical Research Council, a department of the Ministry of Health, has appointed recently a committee to guide it upon researches into the biological action of sunlight and other forms of light in relation to human health and disease. The committee is under the chairmanship of Professor W. M. Bayliss of University College, London. Professor Leonard Hill is also a member. The committee includes as well Sir Henry Gauvain and Dr. Sequeira.

Bronze Medallion of the Carnegie Hero Fund Trust Presented to a Medical Man in Civil Practice.—Dr. J. Hall-Edwards, the well known radiologist of Birmingham, was presented the other day with the Bronze Medallion of the Carnegie Hero Trust Fund, together with an annuity. This medallion may be compared with the Victoria Cross as a distinction. Dr. Hall-Edwards was a pioneer in the use of the *x*-rays in this country. As a result of continual exposure to the *x*-rays it became necessary to amputate his left arm and right hand. Dr. Hall-Edwards was radiographer to the Birmingham General Hospital for a period of twenty years; in the South African war he was radiographer to the Imperial Yeomanry Hospitals, and during the late war he acted in the same capacity to four of the largest military hospitals in this country. No man better deserves honor than he who knowingly risks his life in the pursuit of science and for the benefit of his fellow men, and Dr. Hall-Edwards, as well as several other radiologists did this without a thought for himself.

Honor for Dr. George G. Armstrong of Montreal.—Dr. George G. Armstrong, Professor of Surgery at McGill University, Montreal, has been nominated for the Honorary Degree of Master of Surgery by the Senate of the University of Dublin.

Eclipse of the Sun and Eyesight.—It has been pointed out recently by a medical correspondent to a lay journal here that whenever a solar eclipse takes place a large number of people come under medical treatment, suffering from partial or complete loss of their central vision, as a result of having watched the phenomenon without sufficient protection of their eyes. It is stated that after the eclipse of April, 1912, 3,500 cases of this form of blindness were met with in Germany alone, whilst in many other countries very large numbers of people were known to have been affected. It is interesting to note that eclipse blindness was known to Aristotle, Galen, Lucretius, and Xenophon. It must be borne in mind that it is the very center of vision which is affected; consequently reading, writing, and other occupations which demand the acutest possible vision are seriously interfered with. It is said that the highest medical authorities believe that the trouble is due to the focussing of the solar light rays on the center of the retina. It is incorrect to describe this as a burn because the media of the eye do not permit heat rays to pass through them.

OUR LETTER FROM SWITZERLAND.

(From Our Own Correspondent.)

GENEVA, March 20, 1922.

Bismuth in the Treatment of Syphilis.—Several salts of bismuth have been essayed, but it has been found that tartro-bismuthate of sodium and potassium is at the same time the least toxic and the most active. It is a white, insoluble powder, to be used only as intramuscular injections suspended in an oily vehicle. It must never be given subcutaneously or intravenously. The ampoule containing the bismuth in oil must be shaken vigorously for some time in order to obtain a complete suspension of the salt. It is then quickly drawn into the syringe, the needle having been previously planted in the muscular mass of the buttock. The needle should be of large caliber and at least two and a half inches long. As the drug is not tolerated intravenously, one should be sure that the needle has not entered a vein before injecting. The injection is given slowly. The immediate reaction is trifling. The injections are at first given every second day in the dose of 20 centigrams, or every third day in the dose of 30 centigrams. Afterward they are given every fourth, fifth, or sixth day, or less frequently should stomatitis or a blue line on the gums develop. The total amount of the salt given in a series of injections should be from 2 to 2.5 grams in the space of three weeks to one month. In these doses the activity of the drug is unquestionable and rapid. Fournier and Guénot, who have had the largest and longest experience, found that the treponema disappeared in the chancre after the first injection, but more frequently after the second. The primary lesion heals in from six to twenty days, according to its size. The treponema also disappears from the lymphnodes.

The action of the bismuth salt on the secondary manifestations is likewise very powerful. The treponema rapidly disappears from the lesions and the headache, osteocopic pain, etc., subside in patients who resist the action of mercury or the arsenical salts. Bismuth acts favorably in the tertiary period, and in one case of lingual leucoplasia the lesion notably decreased, although it did not disappear entirely.

Fournier and Guénot have observed no general reaction and only a very tolerable local pain following the injections; stomatitis is less serious than that caused by mercury. On the other hand, Emery and Morin, who have also had considerable experience with the drug, are rather reserved as to the local and general tolerance, as well as the therapeutic activity, particularly when compared with the arsenic preparations. All observers have noted local pain occurring soon after the injection, and this attains its maximum on the following day. It is never insignificant and may be very severe. Stomatitis is also met with. It is frequent and develops after the blue line on the gums has appeared, which is a warning that saturation of the organism has taken place. But it may develop without any prodromes. It is to be treated by the local application of a 1 per cent. solution of methylene blue and one of the arsenical preparations in powder dusted on. General complications are less common. In one case gastrointestinal disturbances developed with mild jaundice and a stomatitis, with a temperature of 101.2° F.

All things considered, bismuth is distinctly and often rapidly active and specific. However, Emery and Morin believe that, in the secondary and tertiary phases of syphilis, its action on Wassermann is less rapid and decisive than that of arsenic. They also believe that bismuth is *more potent* than mercury, even when the most active salts of the latter drug are used, such as calomel, or the cyanide given intravenously. Its usefulness is evident in patients who resist the action of the arsenical compounds or the salts of mercury. Such is the consensus of opinion today; perhaps tomorrow improvements will be made in the bismuth salt that will change our ideas in respect to the drug.

Progress of Medical Science.

Journal of the American Medical Association.

April 8, 1922, lxxviii, 14.

1. Tularemia Francis 1921: A New Disease of Man. Edward Francis.
2. Tularemia Francis 1921 Developing in a Laboratory Worker: Report of Case. John J. O'Malley.
3. Methods for the Isolation of Filter-Passing Anaerobic Organisms from Human Nasopharyngeal Secretions. Peter K. Olitsky and Frederick L. Gates.
4. The Kottmann Reaction for Thyroid Activity. William F. Petersen, F. T. H'Doubler, S. A. Levinson, and J. E. Laibe.
5. Hydrogen-Ion Concentration Studies on Distilled Water, Physiologic Sodium Chloride, Glucose and Other Solutions for Intravenous Medication. John R. Williams and Madeleine Sweet.
6. The Practical Application of "Buffers" in the Regulation of the Hydrogen-Ion Concentration of Intravenous Solutions. Ralph R. Mellon, E. A. Slagle, and S. F. Acree.
7. Syphilis and Trauma: The Workmen's Compensation Act, the Industrial Physician, and the Syphilitic Employee. Joseph V. Klauder.
8. Progressive Lypdystrophy: Report of a Case. August Strauch.
9. Congenital Obstruction of the Duodenum: Report of a Case. Charles H. Schroeder.
10. A New Method for the Determination of Calcium and Thrombin in the Serum. Fred West, assisted by John Bauer and Kathryn Barnikol.
11. Chronic Osteoarthropathy: Report of a Case in a Child Aged Twenty-eight Months. Clarence H. Hyman and T. P. Herrick.
12. The Treatment of Lupus Vulgaris with Solution of Mercuric Nitrate. Erwin P. Zeisler.
13. A Neglected Feature of the Mechanics of Mitral Stenosis. Yandell Henderson.

1. Tularemia Francis 1921: A New Disease of Man.—Edward Francis describes a specific infectious disease due to *Bacterium tularense*, which is transmitted from rodents to man by the bite of an infected, blood-sucking insect or by the handling and dissection of infected rodents by market men or laboratory workers. The insect responsible for transmitting the infection, as studied in Utah, is probably the blood-sucking fly, *Chrysops discalis*. Following the fly bite on some exposed surface of the body, the onset occurs within forty-eight hours with fever and pain in the region of the lymph glands which drain the bitten area; the patient is prostrated and goes to bed; the lymph glands which drain the bitten area become tender, inflamed and swollen, and commonly suppurate, requiring incision. The fever is of a septic type, lasting from three to six weeks, and convalescence is slow. Tularemia is a disease of the rural population, particularly attacking persons who work in the fields. Human cases occur in Utah during the seasonal prevalence of the fly (*Chrysops discalis*) in a community where jack rabbits are dying from an epizootic of a plague-like disease of rodents due to the *Bacterium tularense*. The rabbit, louse, and the bedbug are also capable of transmitting the disease. The writer gives a summary of seven cases investigated clinically and culturally in Millard County, Utah, and refers to six cases occurring in laboratory workers, which have been reported recently by Lake and Francis. This experience, he says, should serve as a warning against unwarranted indifference to an infection which has claimed all those who have worked continuously with it in the laboratory. The ready susceptibility of man to this infection, its wide prevalence in nature in a number of rodents, and the growing number of blood-sucking insects found capable of conveying the infection should combine to put the medical profession of the United States on guard for cases of this new disease in man.

4. The Kottmann Reaction for Thyroid Activity.—William F. Petersen, F. T. H'Doubler, S. A. Levinson, and J. E. Laibe direct attention to a unique serum test for thyroid activity devised by Kottmann. The theoretical premises are, on the basis of previous work with serum in pregnancy, that certain physicochemical differences must exist in the serum in cases of thyroid dysfunction, and that the chief difference would exist in the state of dispersion of serum colloids. Because of the peculiar relation of iodine to the glandular metabolism, experiments were carried out with colloidal iodine preparations, using silver iodide because of its well-known photosensitivity. The technique of the test is as follows: To 1 c.c. of clear serum are added 0.25 c.c. of a 0.5 per cent. solution of potassium iodide and 0.3 c.c. of a 5 per cent. solution of silver nitrate. The resulting suspension of silver iodide in the serum is next exposed for five minutes at a distance of 25 cm. to a 500-watt Mazda lamp (or other light of equal intensity). Then 0.5 c.c. of a 0.25 per cent. solution of hydroquinon is added and the color changes observed at five-minute intervals. In carrying out the test a dark room is theoretically desirable, though diffuse daylight does not materially interfere with accurate results. The color reaction that develops after the addition of hydroquinon varies with different serums. With serum from hyperthyroid cases, Kottmann found the original yellowish color of the serum mixture persisted for a considerable time; in normal serums a brown color (silver iodide reduced to free silver) makes its appearance quite promptly; in serums from hypothyroid cases, Kottmann found the development of the brown color reaction accelerated. The serum from individuals who have had bromides retards the reaction, and such medication must be excluded if the test is to be carried out. The writers have studied 400 serums obtained from patients with thyroid dysfunction, as well as those ill with other diseases, and a large group of normal persons. The results demonstrate that the photochemical serum reaction devised by Kottmann yields a close index of the thyroid activity. The test is simple and should be of material aid in the clinical as well as the experimental investigation of thyroid problems.

5. Hydrogen-Ion Concentration Studies on Distilled Water, Physiologic Sodium Chloride, Glucose and Other Solutions for Intravenous Medication.—John R. Williams and Madeleine Sweet show that the hydrogen-ion method of determining the reactions of fluids used for therapeusis or clinical investigation is of great importance. When fluids having a higher or lower hydrogen-ion concentration than that of the blood are injected into the circulation at a rate or in an amount that the blood cannot neutralize or buffer, reactions characterized by chills and prostration follow. By the hydrogen-ion method they have determined that distilled water, if not carefully prepared or when stored as a stock solution, becomes highly acid so that when used as a solvent it may produce a solution of a much higher hydrogen-ion concentration than that of the body. Glucose solutions become highly acid when boiled, autoclaved, or when permitted to stand for a few hours. Stock glucose solutions as used clinically are highly acid. Physiological sodium chloride solution, when prepared with stock distilled water or impure salt, may be very acid. A normal or physiological salt solution should not only contain that amount of salt which will make it isotonic with the blood, but it should also have the same hydrogen-ion concentration by the addition of buffer salts. The buffering of glucose and physiological sodium chloride solutions, in the experience of the essayists, has served to prevent reactions. They have studied and will report in a succeeding paper the hydrogen-ion concentration of sodium citrate solutions, serums, vaccines, and antitoxins, arsphenamine preparations, neo-arsphenamine, and hypodermic medication in both tablet and ampoule form.

7. Syphilis and Trauma: The Workmen's Compensation Act, the Industrial Physician and the Syphilitic Employee.—Joseph V. Klauder discusses the possible results as seen clinically when syphilitic tissue is subjected to trauma, and emphasizes the fact that not only may syphilitic manifestations develop in the skin and muscles when these are subjected to trauma, but other organs—the osseous system, viscera, and nervous system—may similarly react after the infliction of trauma. The surgeon has long been cognizant of syphilis as a factor in the non-healing of wounds and the non-union of fractures. Therefore, when an employee sustains an injury, it should be the routine procedure on the part of the industrial physician to have the Wassermann test made. If positive, antisyphilitic treatment should at once be administered. In this way untoward results of the injury will doubtless be prevented. If a syphilitic workman has sustained severe head trauma and possibly cerebral injury, prolonged rest with intensive antisyphilitic treatment should be carried out. In this circumstance the wisdom of performing a lumbar puncture for diagnostic purposes soon after the injury can be questioned in view of the disturbance of the meningeal-choroidal mechanism caused by lumbar puncture. In this way it is possible experimentally to infect the neuraxis from the blood.

The Lancet.

March 18, 1922, ccii, 5142.

1. Hunterian Lecture on Orthopedic Aspects of Rheumatoid Arthritis. Alan H. Todd.
2. The Application of Modern Methods in the Treatment of Psychoses. R. G. Rows.
3. Encephalitis Lethargica: Some Clinical Observations on Thirty Cases. Arthur J. Hall.
4. The Hysterical Nature of Socalled Pernicious Vomiting of Pregnancy. A. F. Hurst.
5. Severe Uterine Hemorrhage After Vaginal Operations. John Phillips.
6. The Dog as a Carrier of Disease to Man. Thomas W. M. Cameron.

1. Orthopedic Aspects of Rheumatoid Arthritis.—Alan H. Todd calls attention to the fact that rheumatoid arthritis and allied conditions are responsible for a very large amount of physical disability, patients of all ages and in all walks of life becoming crippled by the condition. The nomenclature of this deforming disease is still vague and unscientific, the various forms described possibly being only variants of what is fundamentally one disease. Affecting women more than men, in the proportion of three to one, it occurs with distressing frequency in the middle-aged and even in the young. While there is little doubt that the disease is

due to infection of the joints, and is often associated with the presence of foci of infection in other parts of the body, we are far from being able to afford practical help to the sufferers from an application of this knowledge. It is a regrettable fact that an orthopedic surgeon seldom sees a case of rheumatoid arthritis free from deformity, whereas all deformity is essentially preventable, arising as it does either from faulty posture or adaptive changes which can be foreseen and avoided. The nurse who supports the patient's knees with a well-meant pillow is leading up to flexional deformity for the sake of present comfort. The bedrid feet unsupported by footrests or some form of bed-splint will tire and drop to become permanently fixed in the equinus position. The valgus posture at first assumed by the person with rheumatoid disease of the ankle bones in order to lock the joints and render them less painful becomes organically fixed from periarticular adhesions. Joints should be straightened either by gradual extension with weights or springs or else by open operation. When a patient is feeble, manipulative methods should be avoided. A short, simple, open operation involves a far shorter confinement to bed than does correction by weight extension, and far less shock than any manipulative methods. The writer describes appliances for correcting deformity and for preventing interosseous pressure and various operative procedures in order to emphasize the fact that a great deal can be done for a large number of those who suffer from this disease.

3. Encephalitis Lethargica: Some Clinical Observations on Thirty Cases.—Arthur J. Hall reviews his observations in this series of cases, 11 of which died (a mortality just under 24 per cent.). There was nothing among these cases that indicated direct or indirect infection. It seems that epidemic encephalitis does not protect against influenza or vice versa. With reference to the prognosis of the disease, Hall feels that generalizations are not yet possible. He agrees with Branwell that a steadily progressive stupor with a rising temperature and loss of sphincter control is ominous, though not necessarily fatal. During the progress of a case it is often impossible to form an opinion as to the prospect of recovery. If one compares it with other acute specific infections, it is apparent that the signs upon which we can usually rely in them for prognosis are often not forthcoming in cases of encephalitis. Patients with comparatively mild attacks recover, only to be seriously damaged for very long periods, even permanently. Others who have appeared in the early stages to be at death's door recover quickly and completely, while still others whose illness has seemed moderately severe for one or two weeks suddenly become worse and die without any obvious reason why they should.

4. The Hysterical Nature of So-called Pernicious Vomiting of Pregnancy.—A. F. Hurst believes that pernicious vomiting of pregnancy is always hysterical. He described the case of a patient under his care which makes it possible to prove with certainty that the case was one which would generally be regarded as of the toxemia class. Clinically the patient was a typical example of severe pernicious vomiting; she vomited constantly whether she took food or starved, her tongue was dry, her pulse rapid as in any case of toxemic vomiting. Two days before the writer saw her the ammonia index was 28, nearly three times as high as the point which Whitridge Williams regards as the danger signal. The urine also contained a very large quantity of diacetic acid. Yet relief followed after half an hour's psychotherapy; the vomiting ceased, the pulse rate fell, the ammonia index dropped to normal for pregnant women, the diacetic acid disappeared from the urine, and the patient gained sixteen pounds in weight in four weeks. "It is obvious from this case that no reliance should in the future be placed either on the clinical or the chemical diagnosis of toxemic vomiting of pregnancy. Personally, the writer does not believe that such a condition exists apart from eclampsia and acute yellow atrophy. The high ammonia index and the great excess of diacetic acid present in this patient's urine were clearly not caused by toxemia, but were the result of starvation and dehydration. It is clear, therefore, that the division into the nervous and toxemic classes is fallacious. All cases are nervous, but the term hysterical should be substituted for nervous, as the condition is typically hysterical, caused by suggestion, and curable by psychotherapy.

British Medical Journal.

March 18, 1922, ii, 3194.

1. "Pernicious Anemia" and "Septic Anemia." William Hunter.
2. Sterility with Reference to the State. R. A. Gibbons.
3. The Digestibility of Bacteria. C. E. Dukes.
4. Slipping Rib. R. Davies-Colley.
5. Restriction of Influenza Epidemics in Schools by the Use of "Local" Prophylactic Vaccines. A. I. Simey and John W. H. Eyre.
6. Aluminium Throat Swabs. Lachlan Grant.

1. "Pernicious Anemia" and "Septic Anemia."—William Hunter, from his extended experience in the study of the anemias, states that the most important outcome of his studies may be summed up in the following sentence: The infective and clinical features of severe anemias go deeper into their nature and help far more in their diagnosis and treatment than the various blood criteria so much before our notice in dealing with anemias. The percentages familiar to us in blood reports make a deep impression on the eye and on the mind, but they have the one great drawback that they always fail precisely in the borderland group of cases, in which the clinical observer most needs their help, and they always fail when the anemia is moderate in degree and when it is particularly necessary to be sure of its character if successful measures are to be taken in time to arrest progress. On the other hand, the outcome of the study of the infective and clinical features presented by cases of severe anemia has yielded the following information briefly summarized: (1) Two forms of severe anemia are to be recognized. The one is the great hemolytic disease *sui generis*, termed idiopathic or pernicious anemia. The other is a very common anemic condition—non-hemolytic in its nature—which the writer has differentiated and termed "septic anemia." (2) The patient who presents the picture of desperate anemia, termed pernicious anemia, is really in the grip of both the above forms of anemia, each of them capable of killing him, and the combination absolutely mortal. The chief one which gives his illness its main characters, clinical features, and course is the hemolytic disease; the other complicating one is the non-hemolytic septic anemia. (3) The outcome of this recognition and differentiation is that the two anemias can be torn apart by removing completely the septic anemia and its causes from the pernicious anemia patient. On doing this, the great hemolytic disease shows itself for the first time in its true uncomplicated characters and course; and these prove to be much milder in severity and with a much better prognosis than were ever formerly presented. (4) A further outcome of these studies has been to reveal certain simple and easily recognizable diagnostic features which enable pernicious anemia to be recognized in its very earliest stages, even within a few weeks of its first contraction, and on an average about two years before it generally comes under treatment. (5) The infective and clinical features here referred to, that help so much in the diagnosis and treatment of both classes of anemia, are connected with observations, not on the blood, but of lesions connected with the mouth. These lesions are combined in the case of the pernicious anemia patient, but are perfectly distinct from one another, and have a totally different pathological and etiological significance. The infective lesions connected with the diagnosis of pernicious anemia are the peculiar sore tongue which this disease presents as one of its earliest features. The lesions concerned with "septic anemia" are septic lesions connected with chronic and overlooked dental and nasal sepsis, especially the former, to which the author has given the name "oral sepsis." When sepsis is removed the powers of recovery from this hemolytic disease are thereby increased. The writer has had under his observation 150 cases of pernicious anemia during the last twenty years, and finds that the dreadful, hopeless pictures which the disease formerly presented he no longer sees in patients in whom he has been able to carry out the full measures of antisepsis which he considers necessary, without using any new methods of treatment other than antiseptic treatment against gastrointestinal sepsis, which he recom-

mended in 1890, and the measures of oral sepsis, which he recommended in 1900. The name "glossitic anemia" would best connote this great hemolytic disease, help in its early diagnosis, and in its control.

3. The Digestibility of Bacteria.—C. E. Dukes describes experiments undertaken for the purpose of studying the conditions under which bacteria resist digestion, and under what conditions this protective property can be destroyed. He concludes that bacteria do not adsorb proteolytic ferments. The protein of bacteria is protected from the action of proteolytic ferments by the lypoidal envelope with which the bacteria are surrounded. The agencies which destroy this protective mechanism act by disturbing the lipoid distribution. The antibodies present in immune serum do not in any way render bacteria more digestible by trypsin.

5. Restriction of Influenza Epidemics in Schools by the Use of "Local" Prophylactic Vaccines.—A. I. Simey and John W. H. Eyre present a study of several influenza epidemics at Rugby School and recount their experience with a "local" prophylactic vaccine composed of the following organisms obtained from swabs of the throats and nostrils of recent cases: Pneumococcus, 100 million; *Micrococcus catarrhalis*, 75 million; streptococcus, 50 million; pneumobacillus, 100 million; *Bacillus septus*, 100 million, and *Bacillus influenzæ*, 30 million. Strains from other sources were also incorporated whenever necessary. The first injection was with stock vaccine and the second, fourteen days later, with the local vaccine. Of those who received both vaccines at school, 7.3 per cent. only contracted influenza; of those inoculated at home, 41.0 per cent. contracted the disease; of those who were not inoculated at all, 81.0 per cent. came down with the disease, while of those who received only the initial stock vaccine at school, 84 per cent. contracted influenza. Grouping together all those who received one or more inoculations (405 boys), the incidence of the disease in this group was 27.9 per cent., as opposed to 81 per cent. among the uninoculated.

Bulletin of the Johns Hopkins Hospital.

December, 1921, xxxii, 370.

1. Experimental Inoculation of Human Throats with Virulent Diphtheria Bacilli. C. G. Guthrie, B. C. Marshall and W. L. Moss.
2. The Significance of "Hemolytic Influenza Bacilli." Arthur Bloomfield.
3. Experimental Studies on Hydrocephalus. Juan C. Nañagas.
4. Sulphemoglobinemia. V. R. Mason and F. D. Conroy.
5. Morphological and Physiological Studies on the Musculature of the Mature Graafian Follicle of the Sow. M. S. and A. F. Guttmacher.

1. Experimental Inoculation of Human Throats with Virulent Diphtheria Bacilli.—C. G. Guthrie, B. C. Marshall, and W. L. Moss conclude that virulent diphtheria bacilli present in the throats of healthy carriers are capable of producing clinical diphtheria and do not differ from those obtained from patients with the disease. Virulent diphtheria bacilli retain their characteristics despite long residence in the human throat or transfer from one human being to another. The guinea-pig test is a reliable index of the inherent ability of diphtheria bacilli to cause clinical diphtheria in susceptible human beings. The Schick test is a reliable index of the presence or absence of antitoxic immunity against diphtheria. Experimental diphtheria in human beings has a short incubation period, produces marked constitutional effects, and is accompanied by a sharp febrile reaction. It may be cured promptly by the early injection of antitoxin in adequate dosage.

2. The Significance of "Hemolytic Influenza Bacilli."—Arthur L. Bloomfield presents observations on the occurrence of these organisms in a heterogeneous group of physicians, nurses, medical students, laboratory attendants and hospital patients. "Colds" were prevalent during a part of the period covered by the study, and some of the subjects were affected at the time the cultures were obtained. Hemolytic influenza bacilli were found almost uniformly in cultures made during November and December, 1920, whereas since then the incidence has been somewhat below 50 per cent. In every case but one the organisms were present only sporadically and in small numbers. In this one case they were constantly present in large numbers on the pharynx and both tonsils. This subject had no clinical respiratory infection during the last winter and showed no special abnormality in the upper air passages. A consideration of these findings leads the writers to the belief that a carrier state in association with a local focus of diseased tissue cannot be assumed as an explanation of the presence of this organism. It is possible that the presence of these organisms in over 50 per cent. of a large series of throat culture may be explained by the possibility that, under special and as yet undefinable circumstances, abortive or temporary adaptation of organisms to growth in the upper air passages may occur. Such an assumption would account for the wide occurrence of influenza bacilli at the time of the epidemic of 1918 and during the year following it, and for the reported instances of large numbers of temporary carriers of hemolytic streptococci and meningococci in association with epidemics of diseases due to these organisms.

3. Experimental Studies in Hydrocephalus.—Juan C. Nañagas has made a study of experimental hydrocephalus in kittens and from observations as to the results of the intravenous injection of hypertonic solutions in this series of animals, he concludes that the cerebrospinal fluid in the dilated ventricles may be acted upon by alterations in salt concentration of the blood, and that the volume of the intraventricular fluid may be apparently increased or diminished by the administration of solutions of different concentrations. Intraventricular absorption of cerebrospinal fluid took place through the ependyma into the underlying capillary network. This absorption was hastened by the intravenous administration of strongly hypertonic solutions. The choroid plexuses took absolutely no part in the intraventricular absorption of the cerebrospinal fluid.

New Orleans Medical and Surgical Journal.

February, 1922, lxxiv, 8.

1. Encircling of a Fusiform Aneurysm of the Aorta. Tuffier. Translated by H. E. Bernadas.
2. Blood Transfusion in Obstetrics. E. L. King.
3. Report of a Case of Raynaud's Disease. R. S. Crichlow.
4. Removal of Foreign Bodies from the Eye. H. Dickson Bruns.
5. The Treatment of Empyema. F. W. Parham.
6. How Apothesin Compares with Other Agents Used in Spinal Anesthesia, with Special Reference to a Near Accident. Paul J. Gelpi.

2. Blood Transfusion in Obstetrics.—E. L. King has employed transfusion in four classes of cases: (1) Hemorrhage; (2) puerperal infections; (3) hemorrhagic disease of the newborn; (4) pernicious vomiting of pregnancy. The advantages of transfusion in hemorrhage are generally admitted in puerperal blood stream infection the indication is not so generally admitted. Following Polak's suggestions, three patients who were desperately ill were transfused. One had a streptococcic bacteriemia, one a colon bacillus blood stream infection, while the third was suffering from pelvic thrombophlebitis with apparent intermittent bacteriemia, though a positive blood culture was not secured. The prompt response to the transfusion and the rapid recovery of the patients attested the value of the procedure in two cases. The patient with the colon bacillus bacteriemia was in desperate condition at the time of transfusion and died; but not from the effects of the transfusion. If it had been done earlier she might have been saved. A case of hemophilia in the newborn was treated successfully by transfusion through the anterior fontanel. While the author lost the only case of pernicious vomiting which he has treated by transfusion, he feels that it should be of value in these cases. His results have been encouraging and he feels justified in continuing the use of transfusion in cases of the types referred to.

Phlegmonous Gastritis.—This affection may be due to the presence of cancer of the stomach, which it masks. A case of this sort is reported by Sandelin. The phlegmonous process was diffuse but an attempt was made to resect the stomach. In the specimen after hardening with formalin it became possible to recognize the presence of a cancer. A streptoccoccus infection had apparently occurred in the latter.—*Finska Läkaresällskapets Handlingar.*

Book Reviews.

OPIATE ADDICTION, ITS HANDLING AND TREATMENT. By EDWARD HUNTINGTON WILLIAMS, M.D. Formerly Associate Professor of Pathology, State University of Iowa; Associate Editor of the Encyclopedia Britannica (Tenth Edition); Assistant Physician, New York State Hospital System; Special Lecturer on Criminology and Mental Hygiene, State University of California, etc. Price, $1.75. New York: The Macmillan Company, 1922.

THIS is a useful and very timely book and one that should be in the hands of every practitioner who has or is liable to have a patient suffering from drug addiction. The author is practically familiar with every phase of his subject, having devoted special study to it for many years, and is one of the few who can speak with authority. In the introduction the author relates the history of the Los Angeles and San Diego Narcotic Clinics, which accomplished a great deal of good during the short time they were in existence, and he urges a revival of them there and in other cities. Both the gradual reduction and the rapid withdrawal methods are described in detail, and many pitiful stories are told of the fiendish work of the drug peddler through whose agency the army of addicts is continually recruited. This is an important companion book to "The Narcotic Drug Problem," by E. S. Bishop, and the two together cover well the entire subject, so far as it is known today, of the drug disease and its treatment.

THE CLINICAL STUDY OF THE EARLY SYMPTOMS AND TREATMENT OF CIRCULATORY DISEASE IN GENERAL PRACTICE. By R. M. WILSON, M.B., Ch.B. Late Assistant to Sir James Mackenzie under Medical Research Committee; Late Cardiologist, War Office Trench Fever Committee; Consulting Physician, Ministry of Pensions. With a Foreword by Sir JAMES MACKENZIE, M.D., F.R.S., F.R.C.P. Price, $4.75. New York: The Oxford Press, American Branch, 1922.

THE keynote of this book is sound common sense, something which characterizes all that Sir James Mackenzie and his pupils discuss. The author treats of various symptoms associated with cardiovascular disorders, and of their interpretation, in a simple and direct manner that opens the eyes of the reader to new views of old subjects and brings conviction to his mind. Among the subjects discussed are: Exhaustion, The Pulse rate as a Symptom, The Extrasystole as a Symptom, Tremor, Breathlessness, Cyanosis, Subjective Symptoms, Cardiac Pain, Earliest Symptoms of Heart Failure, etc. Every chapter is illuminated by one or more rays of a new light, even though the matter treated of is familiar and commonplace. We can confidently recommend this book to every practitioner of medicine, and dare to say that not one will rise from its careful perusal without having gained new knowledge.

AUTOEROTIC PHENOMENA IN ADOLESCENCE. An Analytical Study of the Psychology and Psychopathology of Onanism. By K. MENZIES, with a Foreword by Dr. ERNEST JONES. Second Edition. Price, $1.50. New York: Paul B. Hoeber, 1921.

THE author frankly announces that this second edition is practically a reprint of the first, with few corrections and verbal alterations. Nevertheless, his message is a welcome one and should be regarded closely by those who deal with masturbators. The book is one hundred pages in length, and is devoted to the consideration of the psychology, pathology, ethics, and treatment of masturbation.

THE SURGICAL EXPOSURE OF THE DEEP-SEATED BLOOD-VESSELS. By J. FIOLLE, M.D., and J. DELMAS, M.D. Translated and edited by CHARLES GREENE CUMSTON, B.S.M., M.D. (Geneva), Fellow of the Royal Society of Medicine of London, etc., etc. Price, 8/6 net. London: William Heinemann, 1921.

THE translator regards this volume as one of the small number which really merit translation. There are 34 original illustrations by H. Beaufour. In a short preface by D'Arcy Power attention is called to the fact that as a result of war experience much old knowledge has been rediscovered. The authors served in the 21st Motor Ambulance. The body is divided into 11 surgical regions, each of which is dealt with in a special chapter, while a twelfth chapter is general in scope. The regions are naturally those in which large vascular trunks abound, which selection eliminates the trunk, cranial region, and peripheral segments of the extremities and concentrates on the neck, axillae, groins, and more central segments of the limbs. The neck requires three entire chapters, and the lower extremity five or six, counting the gluteal region; and the axillae and upper extremity two.

ESSENTIALS OF VETERINARY PHYSIOLOGY. By D. NOËL PATON, M.D., B.Sc., LL.D., F.R.S., Professor of Physiology, University of Glasgow, Late Lecturer in Physiology, Royal Veterinary College, Edinburgh, and JOHN BOYD ORR, D.S.O., M.C., M.A., M.D., D.Sc. Third edition. Price, $6.50. New York: William Wood & Co., 1921.

THE present edition has been almost entirely rewritten and brought up to date with especial reference to those facts which bear most directly on veterinary practice. Since there can be no essential differences between animal and human physiology the interest of its casual reader will be concerned chiefly with the animal species or genera concerned. The horse is the animal which serves chiefly to illustrate comparative physiology. Other animals are covered under feeding habits, as herbivora, carnivora and omnivora. The book represents a sort of transition, therefore, between comparative physiology on the one hand and physiology of domesticated animals on the other hand. There are 674 pages in the present edition.

CLINICAL ELECTROCARDIOGRAPHY. By FREDRICK A. WILLIUS, B.S., M.D., M.S. in Medicine Section on Clinical Electrocardiography the Mayo Clinic, Rochester, Minn., and The Mayo Foundation, University of Minnesota. Price, $5.00. Philadelphia and London: W. B. Saunders Company, 1922.

OWING largely to the expense of apparatus and the skill required in operating it, few physicians are familiar with the electrocardiograph and the information which it gives as to both diagnosis and prognosis of cardiac affections. As the author of this little treatise says, "Electrocardiography must always remain subsidiary to practical methods of physical diagnosis, but its value as a most important clinical adjunct cannot be too strongly emphasized." The subject is not an easy one to master, but a great help is given in this book, for the author knows his subject thoroughly and has succeeded in putting his description of the technique of operation and the art of reading and interpreting the cardiograms in simple and intelligible language.

THE SURGICAL TREATMENT OF NON-MALIGNANT AFFECTIONS OF THE STOMACH. By CHARLES GREENE CUMSTON, M.D., and GEORGES PATRY, M.D., Lecturers at the University of Geneva and Members of the Surgical Society of Switzerland. With an Introduction by Sir BERKELEY G. A. MOYNIHAN, K.C.M.G., C.B., M.S., Professor of Clinical Surgery, University of Leeds. Price, $5.00. London: William Heinemann; Philadelphia: J. B. Lippincott Company, 1922.

THIS work deals chiefly with gastric ulcers and, as Moynihan says in his introduction, a work of this kind is very necessary. The literature of gastric ulcer is considerable, but much of it was written before the days when the truths of the pathology of the living were revealed by the work of the surgeon. It is further pointed out that the discrepancy between the older teaching with regard to ulceration of the stomach and the newer opinions promulgated by the surgeon is serious. The authors believe in the fallacy of statistics and consequently few are given, but they state that the book represents the combined experience of an American surgeon well versed in European methods and a European surgeon fully conversant with Anglo-Saxon surgery and practice. In fact, with Sir Berkeley Moynihan's introduction, the book is one of international team work, a distinctive feature, and this should prove of great value to those who wish to know the latest views of the subjects discussed and especially on gastric ulcer from the medicosurgical standpoints.

Society Reports.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

One Hundred and Sixteenth Annual Meeting, Held in Albany, N. Y., April 17-20, 1922.

(Special Report to the MEDICAL RECORD.)

HOUSE OF DELEGATES.

First Session—Monday, April 17.

THE SPEAKER, DR. E. ELIOT HARRIS OF NEW YORK IN THE CHAIR.

Report of the President.—Dr. JAMES F. ROONEY of Albany submitted this report, in which he said in part that there had been a satisfactory and normal increase in membership in the State Society, although it was lamentable that nearly one-half of the profession of the State were as yet outside of the pale of the organized profession. There were several reasons, it appeared, for this state of affairs, namely: (1) General dissatisfaction with what organized medicine has done for the profession; (2) loss of the professional and predominance of the commercial spirit; (3) apathy. It would seem that some definite effort must be made by the Society to remove the sources for the dissatisfaction of a large minority of the profession and to stimulate them to the recognition of the fact that an organization of democracy was effective largely in direct proportion to its numbers, and to eliminate any causes within the Society that gave justification for suspicion on the part of the minority. It was an undeniable fact that the organization of the Medical Society was on the whole a very loose and to a large degree an uncoordinated one. More effective means must be taken within the district branches, and more especially within the County Societies to organize the profession more solidly, more representatively, more energetically, and thus more effectively than at present. This could not be done without money. It could not be done by devoted and capable practitioners of medicine, who had sacrificed and were now sacrificing their own personal interests and those of their families, at a great loss of their time to the interests of the profession. It was suggested that the House of Delegates should properly consider some means for bettering the present deficiencies in organization. It was an undeniable fact that there had been a steady loss of influence of the organized medical profession upon the public. This had been especially notable within the past ten years, and had occurred *pari passu* with the growth of the various welfare organizations and the extension of public health agencies, the former dominated by lay groups and the latter by members of the profession, who were to a greater or less degree out of touch with the general practitioners. Because of this, the medical profession had been assailed from both within and without, and had been placed upon the defensive. The organized medical profession, because of its lack of influence with the press and its inability to secure therein the continuous and straightforward honest expression of its views, had been placed before the public in the apparent position of opposing the wonderful schemes proposed for the prevention of disease, the lessening of sickness and the amelioration of the condition of the poor. These conditions were responsible for the propaganda on the subjects of Compulsory Health Insurance, the centralization of powers in Federal and State bureaus; the oppressive regulations placed upon the medical profession by the departments of the Federal Government in the prescribing of alcohol and narcotic drugs, which would lead not to the administrative control of the medical profession, but to what would be eventually worse, perhaps, legislative dictation as to therapeutics. The situation was pitiful and ridiculous, not to say tragic. It was the height of silliness to pillory the medical profession before the public as had been done, practically damning it as the chief source of provision of narcotic drugs and alcohol, when as a matter of fact it had been proven that so far as narcotics are concerned the medical profession was responsible for the supply of less than ¼ of 1 per cent. of drugs of addiction, and so far as alcohol was concerned probably for less than 1/100 of 1 per cent. The regulations as relating to both remedies undoubtedly caused unnecessary suffering and perhaps death. The recent requirement of the Federal Narcotic Bureau imposing upon the physician the necessity, where opiates were prescribed over a period longer than ten days, of writing the diagnosis upon the prescribing blank, in all probability was a violation of the law of this State as related to privileged communications; so that the physician of this State was placed in the anomalous position of complying with the Federal law by violation of the State law. The usurpation by Congress of the therapeutic rights of the medical profession, as evidenced in the recent amendment of the Volstead Act, was indicative of what was coming to the profession. The reason for this appeared to be largely due to dereliction of duty on the part of the officers of the organized profession of the nation, or of their inability to properly represent the profession. In either instance, or in both, it demanded a complete national reorganization, in order that the medical profession of the country be properly and adequately represented at Washington. An instance in point was the weak shilly-shally resolution relating to State Medicine passed by the House of Delegates of the A. M. A. at Boston, which was construed by the congressional committee having consideration of the Sheppard-Towner bill as placing the A. M. A. in the attitude of favoring this legislation. This should not be permitted to occur again, and it was recommended that the House of Delegates of this Society consider what action might be deemed proper, that this condition might be prevented from occurring again. The danger of all organized democratic bodies was their control by a small, alert, and effective group, similar to the domination of the Japanese Government by the Genro, the "elder statesmen." It was against human nature to wield power for long periods of time and not develop a complaisant belief in one's own infallibility. It was especially essential, therefore, that great care be exercised in the choice of officers and delegates to be sure that they would be truly representative not of the opinions of the Genro, but of the best interests of the public and the profession. For five years the medical profession had attempted to secure the passage of legislation raising the standards of admission to the practice of medicine and procuring the vigorous enforcement of the Medical Practice Act, and for five years had failed. This year the two bills providing for this purpose were passed by the Senate, one was passed by the Assembly, and that one was vetoed by the Governor. The memorandum attached giving his reasons for this veto would give great comfort and satisfaction to all the violators of the present Medical Practice Act and, unfortunately, would apparently give them reason for the continuance of their efforts to be licensed. It was a remarkable phenomenon that a group of not more than 1500 chiropractors, who practically acknowledged that they were practising in violation of the law, were able to defeat legislation proposed by the Medical Society of the State of New York in conjunction with the Departments of Education and Health of this State. It might then be well for the Society not to oppose the repeal of the entire Medical Practice Act as it to-day existed and to permit a reversion to the status that existed before 1885; that there should be no State license, no examination, no registration, and that only holders of the degree of M.D., conferred by a medical school recognized by the Regents of the State, should be eligible to sign birth or death certificates or to make returns for infectious or communicable diseases.

Report of the Speaker.—Dr. E. ELIOT HARRIS of New York presented this report. He stated that it seemed fitting and timely that the House of Delegates should respond to the urge of the stirring words of the constitution and consider the abuse of medical charity, especially in the form of the pay clinic, which was an abuse of medical charity as defined by the dispensary law of the State and the rules and regulations promulgated by the State Board of Charities in harmony with the spirit and intent of that law. After reviewing these

rules and regulations, Dr. Harris said that as there was a movement pressing toward a radical change in the dispensary law, he recommended that the House of Delegates refer the questions of the abuse of medical charity, dispensaries and pay clinics to the council for consideration and action in behalf of the society. The revised constitution and by-laws would be presented to the House of Delegates for adoption. In this revision there was no mention of the principles of ethics and he recommended that the principles of ethics of the American Medical Association as revised May 7, 1903, be incorporated in either the constitution or the by-laws.

Report of the Secretary.—Dr. EDWARD LIVINGSTON HUNT of New York submitted this report, which showed that the membership on December 31, 1921, was 7,853, and on January 1, 1922, it was 8,664. The report contained an appreciation of Dr. Dwight H. Murray of Syracuse, Vice-Speaker of the House of Delegates and Speaker of the House of Delegates of the American Medical Association. It called upon the members of the House of Delegates to make a careful study of the revised constitution and by-laws, to the Group Liability plan of insurance, which had now been in effect for over a year. He stated that about 3,000 members, or one-third of the membership of the Society, had availed themselves of its privileges. He also called attention to the success of the Legislative Bureau of the Society at Albany and recommended that the House of Delegates authorize a continuation of this bureau and vote an appropriation for its maintenance.

Report of the Treasurer.—Dr. SETH M. MILLIKEN of New York submitted this report, which had been duly audited, and showed that the income of the Society for the year was $46,298.89 and expenditures $40,331.62, leaving an excess of income of $5,697.27.

Report of the Committee on Legislation.—Dr. JAMES N. VANDER VEER of Albany submitted this report, which, owing to the establishment of the Legislative Bureau at Albany, represented a much greater amount of work than had been covered in previous years. So soon as the bureau was established it proceeded to inform the various officials of the constituent county societies that they might know where to look for information and to foster in their home counties through them the sending of information relative to the wishes of the doctors in the counties, the lay people interested in public health and its conservation, and the attitudes of the various State legislative officials and others interested in politics relative to these State wide questions. Information was asked first of the county society presidents as to who constituted their various committees and their chairmen, that liaison might be established at once with the proper officials. About twenty per cent. of these officials fell down on their work and did not answer this communication. Then followed communications to the county legislative chairmen asking that they interview the prospective legislative candidates of all parties in the primaries, relative to their attitudes on the four great questions which heretofore had greatly concerned the medical profession: (1) Health Insurance; (2) Health Center; (3) Chiropractic legislation since that had appeared for so many years in the legislative halls and was the leading extra medical cult seeking admission for its practice in this State; (4) Reregistration, which had been discussed at great length at several previous sessions and might crop up once more. It was realized that many legislators might not care to discuss these questions until they really came to the legislative halls, yet it was hoped that the county chairmen would establish such a type of entente cordiale with their several Senators and Assemblymen that matters could be discussed on a broad, free, and frank basis later, for the medical profession had nothing to hide in its legislative desires, despite the slurs which were continually aimed at it as being selfish in type. The report contained a detailed record of the bills with which it had concerned itself and made a number of recommendations in regard to the administration and financing of its work. Among the recommendations was one urging that there should be a studied and concentrated effort made by this State in association with other States of the Union against further enactments by Congress of burdensome, unnecessary, and restrictive laws relating to the administration of needful and indispensable drugs as had been evidenced by the regulations so far put in force relating to alcohol and narcotics. The October, 1921, Federal regulations relating to narcotic drugs had made it necessary to inscribe on every prescription which was a semi-public record the name, etc., *and diagnosis*, where narcotic drugs were given for a period of longer than thirty days. This violated the law of the State of New York, if a physician did so, relative to privileged communications. This condition of affairs presented an anomaly and should be coordinated satisfactorily in some way. It was also recommended, in view of the fact that the drafted chiropractic bills as introduced tended to a lower and lower standard in each successive instance, and that the chiropractors tacitly admitted before his excellency the Governor, in their hearing, that they were practising a type of healing that rejected 95 per cent. of recognized medical knowledge, strongly urged that a uniform bill be drawn with the basic ideas as in the osteopathic bill of 1907, relative to the waiver clause, and that no deviation of line of action be recommended other than allowed by the basic principles of such bill.

Report of Committee on Medical Research.—Dr. FREDERICK E. SONDERN of New York presented this report, which called attention to the fact that during the current session of the Legislature the Betts Assembly Bill, No. 353, and the Boylan Senate Bill Int. No. 371 were introduced to amend the penal law to prevent experiments of all kinds upon living dogs. Public spirited citizens, representatives of colleges, medical and public health organizations, and the members of this committee protested to the members of both Houses and proper objections were also detailed at the hearing before the Assembly committee on February 7. The bills had not been reported out of committee to date.

Report of Committee on Public Health and Medical Education.—Dr. JOSHUA M. VAN COTT of Brooklyn reported that many questions involving health in the broader sense had been discussed and constructive work had been accomplished. They had watched the workings of the new Medical Legislative Bureau and thoroughly indorsed the work they were doing. There had been no era in the history of the Medical Society of the State of New York when so many difficult problems involving not only the public health and happiness but the very existence of decent medicine in the State were before us for adjustment; and if we were to cope with them successfully, we must be ready for sacrifice of time, energy and money to whatever extent may be necessary. Those who could not afford the time and energy must be willing to give liberally of their money. This was not only a public duty but also a necessity, if we proposed to hold the respect and confidence of the public and keep medicine on a plane which would induce men of high ideals and mental ability to join our ranks. The problems of public health, of medical legislation and medical practice should be regarded as individual to every person holding a license to practise medicine in our State; and it should be the duty of each and all to forget personality and give all of the best of self to any form of work or sacrifice which might offer for the solution of these problems. If the individual could not see this point, then the whole state of medicine in New York State was menaced.

Report of the Committee on Medical Economics.—Dr. HENRY LYLE WINTER of Cornwall submitted this report, which first considered conditions in the nursing profession, and recommended that the preliminary requirement of one year in high school which was now obligatory for entrance into training schools be suspended; (2) they advised that the age of admission to training schools, which was ordinarily fixed at twenty years, be reduced; (3) they presented to the Board of Regents the advisability of suspending its regulations relative (a) to the hours of training for pupil nurses, the hours required for school work, time off duty, and, for the smaller cities, attendance upon metropolitan hospitals for training in special subjects; (b) that they should also suspend their regulations requiring specified numbers of nurse-teachers and supervisors. In other words they should endeavor to simplify a situation which these added regulations were complicating. (4) They recommended to the hospital authorities a general reduction in the course of training to two years.

This met the requirements of the State Board of Regents and had already been done in some hospitals. The committee recommended that a State-wide publicity campaign be undertaken by this Society. Such a campaign should be conducted like the one already under way in one of our constituent county societies. It should be done under the auspices of the State Society by each County Society and by means of syndicated articles of real merit produced by a capable writer, and appearing in every desirable newspaper in the State. This committee appreciated that much harm might be done and much injustice worked by such a plan as this unless it was made absolutely to preclude publicity for any one physician or group of physicians, or any one hospital or group of hospitals. There was no such risk, however, if the plan were properly carried out. Public opinion could be formed and public action could be led by such a plan. The committee had viewed with some alarm the tendency to encroachment on community health problems by the Federal Government. This had been centered during the past year in the propaganda developed in favor of the Shepard-Towner bill. The question of Federal support and control, either direct or indirect, of community health problems was a serious one for the practice of medicine.

Report of Committee on Narcotic Drugs.—Dr. EDWARD D. FISHER submitted this report as chairman of a committee composed of Dr. Edward B. Angell, Dr. Edward A. Sharpe and Dr. Walter Timme, which stated that we must endeavor to approach drug addiction with the hope of ameliorating conditions rather than expecting to end them. The education of the public to an understanding of its influence in destroying character and citizenship, and especially its influence on the more or less mentally weak or defective, should be emphasized. We should, however, not exaggerate the present conditions. Sentimentalism must be avoided. Drug addiction has always been with us. The influence of the drug addict on the community, as a whole, was small. The private addict concealed his infirmity; did not try to spread the habit, except perhaps in a very limited circle. The social addict was in a class by himself, was avoided by the public, and found friends only in his own class. There should be, therefore, a classification of the habitual users of narcotic drugs: (1) Those who required narcotic drugs for the treatment of disease. (2) Addicts who were weak, unstable, or defective and used narcotic drugs as the result of an acquired habit. Under this head would fall a large proportion of the criminal class. The committee did not consider drug addiction as a disease entity, but rather as a habit similar to the excessive use of any other stimulant or sedative, as coffee, tobacco, etc. The question was the character of the stimulant or sedative used by the habitué. Functional disturbances of the internal organs followed acute excesses or prolonged use of these drugs. These conditions could be cured, but the fundamental psychopathic state was not cured by cutting off the drug, hence a relapse to the former habit when opportunity offered. The Committee had not taken up the question of any special method of treatment, as that depended on the individual cases and also on the skill and experience of the physician in attendance. A thorough examination of every case should be made which should include the mental condition as shown by his heredity, previous history, etc. The Committee approved the Harrison Law and agreed with the recommendations of the American Medical Association Narcotic Committee of 1921 that a larger amount of the monies derived from its administration be employed in carrying it out. The report of the special Committee on Narcotic Drugs issued by the Council on Health and Public Instruction of the American Medical Association seemed to cover the general aspect of drug addiction. This committee considered that defective and criminal addicts to drugs should be under proper State or county custodial care, as long as the authorities might deem advisable. Private sanatoria were also necessary, subject to the same rules and regulations as were at present observed. They were of the opinion that so-called ambulatory treatment had proved ineffectual in the cure of addicts. The question of the importation, manufacture, and exportation of narcotic drugs the Committee had not considered within its province. The Federal Government should be responsible for this division of the subject. The Committe recommended the restriction of the manufacture of heroine as unnecessary in the practice of medicine.

Report of Counsel for Period from April 1, 1921, to March 15, 1922.—GEORGE W. WHITESIDE, ESQ., submitted this report, in which he said that the work of the Counsel during this period had consisted not only in the protection of members in malpractice actions in accordance with the long established policy of the Society, but the initiation of the additional feature of indemnity protection against such suits. A misconception of what has happened in the past in malpractice cases or a misunderstanding of the financial liability of a physician arising from his professional relation with his patient had given many doctors a false sense of security against the law hazard of medical practice. Some of the responsible insurance companies that had been engaged in writing this type of protection for physicians announced an increase in their rates of about 300 per cent. These companies claimed the hazard of this line justified the increase in rates. The members of the Society through the adoption of the group plan were spared the expense of this exceptional raise in rates.

On motion these reports were referred to appropriate reference committees appointed by the Speaker.

Revised Constitution and By-Laws.—Dr. DANIEL S. DOUGHERTY of New York presented the tentative draft of the revised Constitution and By-Laws of the Society as published in the *New York State Journal of Medicine* of February, 1922. It was voted on section by section and many minor changes were made for purposes of greater clarity. One change provided that hereafter there should be but one vice-president instead of three. Provision was made for a referendum on any question in accordance with such general regulations respecting the manner of submission as the House of Delegates might prescribe.

Lucien Howe Prize.—Dr. EDWARC D. FISHER of New York, chairman of the Committee on Prize essays, announced that the committee recommended that the Lucien Howe prize be awarded to Dr. Arthur J. Bedell of Albany for his essay on "Cataract."

This recommendation was adopted by the House of Delegates.

Reports of Reference Committees.—The Reference Committee on the President's Address, of which Dr. GROVER WENDE of Buffalo was chairman, reported that they approved of the recommendation that the work of the county societies be reorganized and coordinated, and recommended that this matter be referred to the Council which should devise ways and means for stimulating county societies to greater action. In reference to that portion of the address dealing with legislation like the Sheppard-Towner bill, the committee pointed out that the American Medical Association had opposed the Sheppard-Towner bill. In regard to the recommendation that the medical profession cease to carry the onus of protecting the public health, the committee was of the opinion that the medical profession was opposed to abandoning all that it had achieved in this direction during past years and which had been crystallized in the Medical Practice Act. They recommended that resolutions be adopted advising a concerted program for public health education and the publication of a popular national health journal. It was further recommended that steps be taken to make provisions for the disciplining of unworthy members and that such provisions be made a part of the by-laws of the Society. They also recommended approval of a national legislative bureau which should coordinate the legislative activities of all the State societies, and that the American Medical Association be advised of this recommendation.

Dr. ROONEY pointed out certain dangers connected with a centralized bureau for coordinating legislative activities, and made a plea for home rule and State autonomy. He said that this bureau, if established, should be nothing more than a bureau of information for State societies. It should not rule over the houses of delegates of the various State societies and it should not be utilized for the dissemination of propaganda.

The delegates to the American Medical Association should be instructed that this House of Delegates desired that if such a bureau was established more power than was necessary should not be granted to it.

The Reference Committee on the Speaker's address recommended that the recommendations of the speaker be adopted and that the principles of medical ethics as promulgated by the American Medical Association in May, 1907, be incorporated in the by-laws. They also recommended that the Society adopt the recommendation indorsing the Group Liability insurance plan.

The Reference Committee on Medical Research recommended the adoption of the report of the Committee on Medical Research, but wished to add that the short report presented did not express the great value of the work the chairman of that committee had carried on for years. The Committee therefore recommended a vote of thanks to Dr. Sondern and his committee.

The Reference Committee on the report of the Committee on Medical Economics approved in a general way of the recommendations of that committee, though they were somewhat opposed to the training of attendants as nurses. After considerable discussion, the House adopted the report with the exception of that part dealing with the training of attendants.

The Reference Committee on Constitution and By-Laws recommended that the by-laws with the changes that had been adopted be adopted as a whole. After considerable discussion as to the advisability of incorporating into the by-laws the Code of Ethics adopted by the American Medical Association in 1907, it was decided not to take this action, but to appoint a committee to revise the Code. The new constitution and by-laws were finally adopted as amended.

The Reference Committee on the report of the Narcotic Drug Committee recommended the adoption of the report, but after much discussion and several standing votes the House took no further action.

Home for Aged Physicians.—Dr. ROBERT T. MORRIS of New York announced that a home for aged physicians had become an accomplished fact. He said that they all felt at times that if they worked long enough in the good work they were doing they might be without a home and friends and in need of care. Physicians now had a home, the first in this country, at Amityville, N. Y., where they had a two-hundred and eighty-six-acre farm with buildings, all complete, and money in the bank. Physicians in need of a home might be sent there provided those who sent them paid the bills. This invitation did not apply to New York State only but to the entire country.

Election of Officers.—*President,* Dr. Arthur W. Booth, Elmira; *Vice-President,* Dr. Nathan B. Van Etten, New York; *Speaker of the House of Delegates,* Dr. Eliott Harris, New York; *Vice-Speaker,* Dr. George M. Fisher, Utica; *Secretary,* Dr. Edward Livingston Hunt, New York; *Assistant Secretary,* Dr. Wilbur Ward, New York; *Treasurer,* Dr. Seth M. Milliken, New York; *Assistant Treasurer,* Dr. Charles Gordon Heyd, New York; *Chairman of Committee on Public Health and Medical Education,* Joshua M. Van Cott, Brooklyn; *Chairman of Committee on Scientific Work,* Dr. James N. Vander Veer, Albany; *Chairman of Committee on Medical Economics,* Henry Lyle Winter, Cornwall; *Chairman of Committee on Scientific Research,* Dr. Frederic E. Sondern, New York; *Chairman of Committee on Prize Essays,* Dr. Lucien Howe, Buffalo; *Delegates to the American Medical Association:* Dr. E. Eliot Harris, New York; Dr. Edward Livingston Hunt, New York; Dr. Arthur J. Bedell, Albany; Dr. Richard Kevin, Brooklyn; Dr. Grant Madill, Ogdensburg; Dr. Thomas Chalmers, Queens; *Alternates:* Dr. Allan A. Jones, Buffalo; Dr. Alfred C. Prentice, New York; Dr. Albert A. Ferris, Saratoga; Dr. Albert T. Lytle, Buffalo; Dr. Paul B. Brooks, Albany; Dr. O. E. Jones, Rochester.

OPENING MEETING.

Tuesday, April 18.

THE PRESIDENT, DR. JAMES F. ROONEY OF ALBANY, IN THE CHAIR.

Address on Surgery.—Dr. JOHN B. DEAVER of Philadelphia delivered this address. The work of Lister and Esmarch, he said, had combined to develop an art which had been confined to emergency surgical procedures, into one robbed of its terrors, and which had been the means of diminishing or even abolishing much of the suffering of mankind. As time went on it was recognized that the dominant note in Lister's work was cleanliness; and although the spirit of antisepsis still remained the keynote of modern surgery, by being shorn of three of its letters it became asepsis and was translated from a chemical to a physical disinfection by means of heat. An indispensable factor in the development of the surgery of our day was, of course, animal experimentation. It had probably done more than anything else to widen the boundaries of our knowledge by substituting for vague theories more exact knowledge and refined methods of procedure. The achievements of clinical and experimental research had been innumerable since the time of Lister. This consummation surely was worth the sacrifice of all the animals that had ever been used for experimental work. Our entire method of study and investigation had its base in experimental work. It was incomprehensible to him how any right minded individual could spend time, effort, and money in furthering propaganda against this indispensable adjunct to the progress of medicine. This spirit of investigation should be encouraged instead of being hindered. It should be subsidized instead of being taxed. Dr. Deaver pointed out the value of clinical research, stating that in surgery it had revolutionized our knowledge of gallbladder and bile duct surgery, of gastric, intestinal and renal surgery. Thus it was the instrument that had given us the problems for experimental surgery. Progress in surgery was not dependent on clinical or animal experimentation alone; equally essential for surgical diagnosis and treatment were the researches in the fields of bacteriology, chemistry, physics and physiochemistry. With these aids at our disposal we were in danger of losing the advantage of the highly trained senses which our ancestors developed and which to a surprising degree enabled them to detect obscure signs. There was too great a tendency on the part of the youthful diagnostician to neglect the development of the God-given gifts of the five senses and to rely too exclusively on more or less mechanical methods of diagnosis. Another one of the principles of surgery which modern methods had developed to a remarkable degree was that of the least amount of tissue injury with the conservation of maximal function. A proper undertsanding of the chemical changes that took place during the process of metabolism was most essential to an understanding of bodily functions in health and disease. Not so little of the satisfactory reduction of operative mortality was due to improvement in methods of administering general anesthetics. Local anesthetics had also come to occupy an important place in operative surgery, particularly in certain types of cases in which a general anesthetic would be attended with too great risk. The method of anoci-association as developed by Crile was proving particularly useful in the "bad risk" patients such as the cases of exophthalmic goiter. Another factor in the improvement of operative mortality was rapidity of operation, not the record-breaking surgical gymnastics that appealed to the gallery, but the quickest maneuvers and minimum of manipulation consistent with exact and careful work. An erroneous impression that was rapidly being corrected was that functional rest was an essential factor in postoperative treatment. Today the wound was allowed to heal with the minimum of interference and the maximum of rest. But with regard to function their efforts took the opposite course. Observation seemed to show that wounds of those parts of the body subject to the most constant and unavoidable activity healed more smoothly and rapidly than elsewhere. In the treatment of sprains, dislocations and fractures, instead of prolonged bandaging and rest, they now encouraged wherever possible early activity of the muscles, and passive and active movement of operated joints, so that by the time union of the bone had taken place the muscles and joints were in a more or less normal condition.

Medical History.

PARACELSUS VERSUS CELSUS.

By W. B. KONKLE, M.D.,

MONTOURSVILLE, PA.

We do not exclusively adopt any opinion, just as we do not reject any in an absolute manner; but we hold a middle point between these contrary sentiments. And this, in general, is the part in discussions those should take who without ambition seek the truth.—*Celsus.*

We know that, in putting forth, upon whatsoever subject, sounder and better ideas, any one has the right to attack at the same time contrary opinions as false and dangerous, and to refute them.—*Paracelsus.*

PHILIPPE-AUREOLE-THEOPHRASTUS Bombastus von Hohenheim, that *was* his name—his real, correct name, asserts Cumston, basing his statement on documents claimed to be incontrovertibly authentic. But his name *is* Paracelsus—by his own choice and assumption, and by common consent and continuous use. And whether a loose, vague classical translation of his patronymic, or whether coined to signify at once affinity with and preeminence to the ancient scholar whose name it connotes, the appellation immediately brings the Swiss in striking contrast with the Roman. Paracelsus *versus* Celsus—the designation implies that relation. The associated terms are in antithesis. The combinations of personality and character thereby indicated stand respectively the one at the positive pole, the other at the negative. Of the two individualities concerned, the one looks forward, the other backward—the one fronts toward the future, the other toward the past.

Truth is a goddess thickly shrouded, deeply veiled. Not suddenly and wholly does she deign to reveal her shape and features. Her shroud she loosens clasp by clasp, reluctantly fold by fold she lets it fall. Slowly, slowly she lifts her veil, only thus trait by trait to the gaze of enraptured worshipers uncovering lineaments of supernal beauty. The full glory of her form and face no man has ever seen.

Nor do discoveries of truth proceed regularly and without interruption—do not take place in an even, steady, orderly way. The human mind, the mind of humanity, achieves its winnings spasmodically. After a period of energetic, resolute, enthusiastic advancement it halts and rests. Thought, as to its moods and movements, is like Alexander sweeping in conquest across kingdoms and empires, and then sitting down in Babylon, sheathing his sword, and bedecking himself with the robes and garlands of luxurious sloth. Yet these pauses, these lulls, themselves are not altogether devoid of use and benefit. They invite and serve effort to appraise and harmonize and unify and solidify the spoils of victory. Medicine, constituting a distinct and essential factor of civilization, has conformed to the general conditions and methods of progress. It has had its varying epochs of marked activity and advancement, with prolonged intervening eras of stagnation and fixation comparatively unfruitful, yet, withal, promotive of clarification of ideas, reconciliation of doctrines, classification of systems.

At the time of Celsus medicine had well entered upon a term of suspended productivity that was to be unbroken for fifteen centuries. For the healing art, as for other arts and sciences, progress in the main ended with the stalwart Greeks. Virtually, the dark ages began in the twilight of Hellenic culture. In the domain of the higher intellectuality, the Romans were merely the children of the Hellenes—the conquerors were the docile pupils of the vanquished. The offspring of Romulus were original in little else than war, government and law. True, a century before Celsus was Asclepiades, the Bithynian, and a century and a half after him came Galen, the Mysian. But these, in reality, were genuine Greeks, belated and expatriated. And, at any rate, Asclepiades was to the great Alexandrians as is the student to the master. And Galen was to Hippocrates as is a planet to the sun, or as is a taper to the lode-star. All things considered, Celsus actually stood already within the shadows through which so long and so aimlessly mediaeval medicine groped its way.

And Celsus most accurately presents, and most faithfully represents, the medical development that had been accomplished up to the limit of the Greek movement—to the terminal stage of the illustrious march where camp was fixed and all tents pitched. He is the mirror of the conditions and tendencies of the medicine of his day. A Roman of the Romans, as learned as Varro or the elder Pliny, as discerning as Lucretius, as judicial as Tacitus, for the purity and elegance of his Latin called the Cicero of physicians, he is a complete and worthy monument of the lore of the healing art down to his own generation. But he only searches and comments and selects and elects. Even more so than Galen, he is the coryphaeus of eclectics. But that circumstance simply marks the character of his work without detracting from its importance. Conservation need not be correlated with reactionaryism. Still, the significant fact remains that Celsus arranged rather than created—looked around him rather than ahead of him. Of Asclepiades Baas says, "He may be regarded, *mutatis mutandis*, as a kind of antique Paracelsus". Of Celsus that could never be said.

The coming in of the sixteenth century, the century of him of Maria-Einsiedeln, saw medicine occupying the same camp in which its Roman cyclodedist had found and left it—the same except for some minor re-arrangements, a few standards set slightly forward, an occasional tent reared a little farther on. And above and about all might be felt, sensed, the spell-power of quiescence, of stagnancy, of dust and mold and decay. Is Salerno cited as a torch in the darkness? Give her her every due, yet, after all, Salerno's mission mainly was to relight the Greek watch-fires. And Hippocrates, himself, would have been the last man in the world to advise or approve the servile obedience, imitation, adulation which the subsequent ages accorded him. Are the earlier Italian anatomists hailed as emancipators? They strained at their bonds but did not break them—they dissected to verify Galen, not to test him; and where variance became apparent, explanations and apologies healed the breach. Ultimately came the great Belgian. He shook off his chains, and walked forth beneath blue heaven a free man. But before Vesalius' day, volcano-like had burned and thundered Paracelsus. Prior to the inscrutible Swiss, as stated, interpretation and exploitation of the ancients was virtually the exclusive vogue—nobody dreamed he might think for himself. Nobody dared trust independently his own legs—authority was the universal crutch.

Then strode upon the scene Thor with his hammer — Paracelsus, the iconoclast. And idols crumbled and toppled over. In valleys of the dead, dry bones began to stir and live. In medicine's immobile, monotonous camp the blare of trumpets shocked the air, and clamor and bustle told that again was to be taken up the onward march. With respect to men surpassingly great there will be no intermediate, temperate, moderate judgment. Largely depending upon the viewpoint, they will be set down as vastly good or vastly bad. Mediocrity alone elicits mild, reserved, restrained expression as to its worth and quality. So the loud, tense war that has surged and swayed around Paracelsus itself attests his colossal size—proves him the superman. Most medical historians make him the head of an epochal movement—place him as a herald in the dawn of a new era. "He dreams at full noontide, and raves in perfect health," skeptically muses Daremberg. Cruveilhier reflects thus — "Paracelsus, who has been so liberally taxed with extravagance and folly, is the type of those bold innovators, who, braving obstacles, across a thousand chimeras and a thousand reveries hurl themselves to the conquest of a new idea." Bordes-Pagès makes the puzzled remark, "One does not know which should the more astonish, his wisdom or his vagaries." Malgaigne proclaims him "a fore-runner of Bacon and Descartes." In short, he is unique —never before or since has any one been like him. But above all else he had the force and will to start things going. Dissenter, agitator, insurgent, revolutionist, he was the incarnation of vitalizing energy, mightily worked as a leaven in a sterile and inert world. His detractors accentuate the asserted point that to Paracelsus can be accredited very little concrete, practical discovery—that as a producer he is not comparable with Vesalius or Harvey. But let it again be emphasized that he went before these immortals—that he broke through the wall barring the way to progress, leaving a wide, open breach for all aftercomers. And, yet, his work is not without tangible results. He shattered conventionality as to distinctive professional garb—he dressed to suit himself. Although not, as sometimes insinuated, unfamiliar with the Latin of the schools, he threw down the gauntlet to scholasticism by giving his lectures in plain, simple vernacular—the tongue of the people.

And is it a small matter to have led medical investigation and practice back to nature as teacher and healer? This Paracelsus did. Hippocrates first earnestly proclaimed the principle. And theoretically it had never been repudiated. But the pity of it was that, blindly and slavishly, their followers sought and studied nature only as depicted and interpreted on the pages of Galen and Avicenna. "It is nature that furnishes the text, and the doctor who gives the gloss," says Paracelsus. And he urges that the search of nature be direct, immediate, close—insists that she needs no mouthpiece, that her voice is for all and to all.

Then the discovery of zinc and hydrogen, the substitution of tinctures and quintessences of drugs for gross and filthy mixtures of the crude products, the anticipation of the transfusion of blood and of the doctrines of Darwinism, and especially the introduction of the use of mercury in the treatment of syphilis, is all that *peu de chose*?

Still, in truest estimate, it is not as an inventor, an explorer, an innovator that Paracelsus possesses his best, clearest title to transcendant, deathless fame. No; but as the emancipator, the apostle of the morning, the prophet of a new dispensation, standing with his back to the past, and with eye and finger showing the right path down the ages, as such he may be justly ranked as one of earth's few demigods. Therein consists his glory — glory of which nor time nor man can rob him—a glory that will never dim.

Peracelsus, the liberator! How, like mists beneath sunshine, under his daring scrutiny melted away both the sanction and the sanctity of authority!—authority, the ogre in servitude to whom mind had been so helplessly chained! Warningly he exclaims, "Do not believe that through Avicenna you may be sufficiently instructed, that through Galen you may know all, that through Mesuë nothing may escape you." Catching the inspiration of the message, mind rent its shackles, and rose from its grovelling in the dust. And it caught the spirit and power of the truth that no thinker is infallible, that *ex cathedra, ipse dixit* utterances are arrogant and null, that, in very sooth, lower than the throne of God there is no such thing as authority.

Paracelsus, the champion of free and independent thought! He writes on his shield, *"Qui suus esse potest, non sit alterius."* And intellect shifts from a condition of submission or subjugation to an attitude of defiance and defense. To all would-be dominions and despotisms within its realm it peals out the challenge, you may persuade, but you must not dictate; you may cooperate, but you must not usurp; you may supplement, but you must not supplant.

Paracelsus, the wizard spokesman of unborn time! To his antagonists, the wolves that barked and snarled around him, he announces in disdain, "Truly I shall accomplish more against you after my death, than before." Columbus had discovered on the other side of a spherical world unknown continents the year prior to the birth of Paracelsus. Afterward the latter, too, cast off from the old moorings, and boldly sailed forth upon uncharted seas. But the distance he, himself, traversed has small significance compared with the immense import of the potential pertaining to the new route he opened up and the promising course he marked out. Not so much what he did as what he indicated as possible is it that fills one with wonder, almost with awe. Call him dreamer, mystic, ecstatic, fanatic, aye, maniac, if you please. But his ravings are like the outbursts of a god-possessed oracle, and his visions have strangely the dignity and sublimity of prophecy. A seer, a guide he is. And there he stands, with strained sight looking out across the future's watery wastes. And as he looks and points, from his fervid lips flow these words—"Before the end of the world a great number of effects reputed to be supernatural will be explained by causes wholly physical."

But the freeing of thought from a bondage regarded with half resignation and half veneration, was a task for more than one giant. So God sent three—Luther, Rabelais and Paracelsus—the first a doctor of divinity, the other two doctors of medicine—two of them of the German tongue, the other of the French. Of the first, although of a different

creed, Michelet says, "It is not inexact to say that Luther has been the restorer of liberty for the later centuries." In not adjudging to him his full share of that honor the learned Frenchman has wronged his own illustrious countryman, "the great dissembler." And neither is he without fault in failing to recognize the claims of our titan of Maria-Einsiedeln, who dreamed history, to large credit likewise for the re-establishment of what he, Michelet himself, terms *"le droit d'examen."*

And now remain, and forever will remain, the three giants of reform that the day-break of the *renaissance* revealed standing over the slain monsters of the night — the contemporary immortal three—Luther, Rabelais, Paracelsus—these three, and no whit less than the others is Paracelsus.

NEW BOOKS AND OLD.

XXVII. BROWNE'S ARABIAN MEDICINE.

By JOHN RUHRÄH, M.D.,
BALTIMORE, MD.

If you wish to know something about that part of the history of medicine called the Arabian, because it was written in that language though the work of Persians, Jews, and Spanish born Mohammedans, you can get a brief account in such books as Garrison or Withington, and long accounts in Wüstenfeld's "Geschichte der arabischen Aerzte" (1840) and Lucien Leclerc's "Histoire de la médecine arabe" (1876). If you want to go between the two in length there is the excellent account in Neuburger's "History," the first volume of which has been done into English, or you can go back to Kurt Sprengel and get a readable, reliable story. It always interests me greatly to look up what old Kurt has to say when I encounter some article or book on earlier medicine, he generally has a better account than his successors albeit somewhat long winded. If you want the latest, and indeed one of the best, get the Fitzpatrick lectures for 1919-1920 by Edward G. Browne entitled "Arabian Medicine" and published by the Cambridge University Press. Browne is Sir Thomas Adam's Professor of Arabic in Cambridge University. He is a Bachelor of Medicine and a Fellow of the Royal College of Physicians. This happy combination of medical and linguistic ability led the College to honor him with the Fitzpatrick lectureship for the years mentioned, and, as his work shows, this honor was not misplaced.

There are four lectures in all, containing many quotations in the original tongue but fortunately they are accompanied with translations. One regrets that so competent an authority did not add as an appendix a well chosen bibliography together with some explanatory notes.

The great importance of Arabian medicine is, as Browne points out, not in its originality, not in its being except to a small degree the product of the Arabian mind, but because it kept alive the traditions of the ancients and the translations of the old writers made by the Arabians served as a storehouse for Greek and other medicine. It reminds one of the verse:

As the Moors in their exile their keys treasured still,
To their castles in Spain, so have I and no fear,
But the doors will fly open whenever I will
To the prime of the past and the sweet of the year.

Of recent years the chief sources of Arabian science have been made available both in good editions and through the work of able commentators.

Arabian medicine may be said to start with the great awakening of the Moslem national consciousness, the work of Mohammed in the seventh century, and to continue to the destruction of the power of the Caliphate by the Mongol invasion in the thirteenth century. The Golden Age of Arabian learning reached its climax in the century between A.D. 750 and 850. Browne prefers the term Mohammedan civilization to Arabian but does not object to the latter term as long as it is borne in mind that it refers to the language of the science and not to the peoples who are responsible for it, as it was the work of Persians, Syrians, Jews and even Greeks and to a very small extent the Arabians themselves.

The Arabs did not always hold the physician in great esteem as the following sceptical verses show:

Verily, the physician, with his physic and his drugs,
Cannot avert a summons that hath come.
What ails the physician that he dies of the disease
Which he used to cure in time gone by?
There died alike he who administered the drug, and
he who took the drug,
And he who imported and sold the drug, and he who
bought it.

The physician says to thee, "I can cure thee,"
When he feels thy wrist and thy arm;
But did the physician know a cure for disease
Which would ward off death, he would not himself
suffer the death agony.

The first Arabian physician mentioned by the Mohammedan writers is Al-Ha'rith ibn Kalada, a contemporary of the Prophet from whom doubtless Mohammed derived the hygienic and medical knowledge which came to be incorporated in his collected sayings. He believed that God made a remedy for every disease with which he afflicted mankind but the Prophet rather limited his therapeutic recommendations to the administration of honey, cupping, and the actual cautery. Ibn Khaldún was not over enthusiastic about the Prophet's medicine or perhaps his worldly wisdom either for he tells how "on one occasion he forbade the artificial fecundation of the date palm with such disastrous results that he withdrew his prohibition with the remark, 'You know better than I do what concerns your worldly interest'."

The earlier Arabian medicine is not of as great importance as that which came later. At the time of the birth of the Prophet the great school of Jundí-Shápúr was at the height of its glory. It was located in what is now Sháhábád in southwestern Persia. An idea of the state of knowledge and teaching at this time may be obtained by consulting Bridge's Syriac Book of Medicine. Here oriental and Greek medicine met. The Avesta, the sacred book of the Zoroastrians, mentions healing by prayers and religious observances, by priests: by diet and drugs, by physicians; and by instruments, by surgeons. One ordinance was that the beginner must operate successfully on three unbelievers before he try his hand on the faithful.

When the Caliph at Mansur became ill in A.D. 765 he sent to Jundí-Shápúr for Júrís, the son of Bukt-Yishú, who for four years dwelt in Baghdád.

His family remained pre-eminent for six generations, or some 250 years.

The story of Hunayn is interesting. One anecdote must suffice. The caliph offered him a rich reward to compound a poison for one of his enemies, or imprisonment or death if Hunayn refused. After a year's imprisonment for refusal the offer was repeated and again he told the Caliph that he had studied only to be of benefit. Threatened with sudden death Hunayn added, "I have a Lord who will give me my right tomorrow in the Supreme Uprising, so if the Caliph would injure his own soul let him do so." Satisfied with the answer the Caliph appointed him his physician. In the Arabian Nights is the tragic story of a court physician Dúbán and King Yúnán. Hunayn was famed as a translator, for the quantity of his work as well as the quality.

Hippocrates, Galen, Rufus of Ephesus, Oribasius, Paul of Aegina and Alexander of Tralles were most frequently translated. In some instances texts lost in the original were preserved in the Arabian translations as was the case with the ninth to the sixteenth books of Galen's Anatomy.

Browne gives several examples of the remarkable imagery of the Arabs, and their poets sing of things medical just as did their Greek predecessors. A poem on fever by Al-Mutanabbí (tenth century) is very graphic.

And it is as though she who visits me were filled with modesty,
For she does not pay her visits save under cover of darkness.
I freely offered her my linen and my pillows,
But she refused them, and spent the night in my bones.
My skin is too contracted to contain both my breath and her,
So she relaxes it with all sorts of sickness.
When she leaves me, she washes me (with perspiration)
As though we had retired apart for some forbidden action.
It is as though the morning drives her away,
And her lachrymal ducts are flooded in their four channels.
I watch for her time (of arrival) without desire,
Yet with the watchfulness of the eager lover.
And she is ever faithful to her appointed time, but faithfulness is an evil
When it casts thee into grievous sufferings.

Under such astonishing imagery are clearly depicted the delirium and regular nightly recurrence of the fever, the rigors which mark its onset, and the copious perspiration with which it concluded, the latter being fantastically likened to the weeping of a woman torn from her lover's arm.

Rhazes was perhaps the most famous of the Arabian physicians. He became chief physician to the hospital at Ray, an ancient city not far from the present capital of Persia; later he removed to Baghdád to the great hospital which we helped to build. He was a prolific writer and he has been credited with 113 major, 28 minor works and two poems. Most of these have been lost. His descriptions of small pox and measles are the best known. His most important work is the Háwí or "Continens" of which Browne gives a considerable description.

Avicenna, whose Arabian name is Abú Alí Husayn bn Abdu'lláh ibn Síná, was a remarkable person, a physician, a philosopher, poet, man of affairs and what we should now term a good sport. Avicenna turned his attention to medicine when he was sixteen and in two years attained such fame that he was called to attend the ruler of the land. He had a checkered career, traveled extensively, and was a typical exponent of the strenuous life. His days were filled with arduous labor, his nights given over to lectures, dictating his books, wine bibbing, minstrelry and the fair sex. Worn out at 58 he died of an illness which he treated himself, which led to the saying that his physic could not save his body nor his metaphysics his soul. He was a prolific writer, not only on medical subjects but on philosophy, theology, philology, and he was a poet of no mean ability, indeed one of his quatrains ascribed to Omar Khayyam is familiar in the Fitzgerald translation:

Up from Earth's Centre through the Seventh Gate
I rose, and on the Throne of Saturn sate,
And many a knot unravelled by the Road,
But not the Master-knot of Human Fate.

The Qánún or treatise on cardiac diseases is his most important work. While Avicenna was still living, Constantine the African was born probably in Tunis. To his labors as a translator and to Gerard of Cremona and Faraj ibn Sálim (Fararius or Faragut) medieval Europe was chiefly indebted for its knowledge of Arabian medicine.

The Arabians delighted in collecting quaint medical stories and Browne gives a number of interesting examples:

In the next anecdote Rhazes is represented as describing the case of a dropsical boy whose father consulted him at Bistám in N. E. Persia as he was returning from his celebrated cure of the Amír of Khurásán, for whom he composed his "Liber Almansoris." Rhazes declared the case to be hopeless, and advised the father to let his son eat and drink whatever he pleased. Twelve months later he returned to the same town, and, to his great astonishment, found the boy completely restored to health. On inquiring how this had come about, he was told that the boy, despairing of health and life, and wishing to put an end to his existence, had one day observed a great snake approach a bowl of *madíra* (a kind of broth prepared with sour milk) which was standing on the ground, drink some of it, and then vomit into the rest, which shortly changed color. Thinking to put an end to his life with this poisonous mixture he consumed the greater part of it, after which he fell into a deep sleep, from which he awoke in a copious perspiration, and, after violent purging, found that he was quit of his dropsy and his appetite had returned.

The Arabians also went in for biography and there is one work composed in 1245 at Damascus which is limited to the lives of medical men. There is also a biographical dictionary of philosophers and physicians composed by one al-Qifti' and accounts of other medical men are to be found in some of the other monumental works.

There were hospitals in great number, many large and important. Browne makes the following significant comment:

It is worth noting that the word *Máristán*, used throughout these books for a hospital, is a corruption of the Persian word *Bímáristán*, which signifies in that language "a place for the sick." It has now been replaced in Egypt by the purely Arabic word *Mustashfá*, meaning "a place where health is sought," while *Máristán* has come to be used in the sense of a mad house.

Before closing one or two oriental thoughts must be included. In the third lecture we find this quotation from Ibn Khaldún, "The Past more closely

resembles the Future than water resembles water," and another wise Arabian likens time to a long poem in which the rhyme, meter and rhythm never vary, though the same rhyming word is never repeated. This has been translated into German as follows:

Die Zeit, die ewig dahin rollt, ist wie ein Gedicht:
Doch denselben Reim wiederholt der Dichter nicht.

The same verse has been rendered into English verse by R. A. Nicholson as follows:

And the Maker infinite,
Whose poem is Time,
He need not weave in it
A forced stale rhyme.

Browne doubts if from a utilitarian point of view that further investigation of the early Arabian medicine is justified but of course that is no reason for not going on with it, though it is rare to meet with a scholar who has the linguistic equipment, the medical knowledge, the leisure, the enthusiasm and the industry necessary to delve deeply into the original sources. In closing Browne says:

More remains to be accomplished in this branch of Arabic studies than in any other of equal importance and much pioneer work is required ere we can hope to reach the ultimate conclusions which are so important for the history of scientific thought throughout the ages. Above all, there has grown in me while communing with the minds of these old Arabian and Persian physicians a realization of the solidarity of the human intelligence beyond all limitations of race, space, or time, and of the essential nobility of the great profession represented by this college.

Statures and Weights of Children Under Six Years of Age.—Under this title the Children's Bureau of the United States Department of Agriculture has brought together the largest mass of data on the heights and weights of children under six years of age ever collected in this country. Of the 172,000 records tabulated, all of which met certain requirements as to accuracy and completeness, 167,024 were records of white and 4,976 records of Negro children. Boys under six years of age were found to average from one-third to one-half an inch taller and to weigh about a pound more than girls of the same ages. California children were found to be slightly taller and heavier than other groups in the study—a difference for which climate or some factor other than the nationality composition of the population, which closely resembles that of other parts of the country, is held responsible. The shorter stature noted in the New York City group is, however, attributed to the presence in that group of a larger proportion than in the country as a whole of short-statured races, such as the Italian and Jewish. A selected group of children of native parentage showed very little deviation in average height and weight from the averages of the larger group, including both children of native and those of foreign-born parents. Children in rural areas slightly exceeded the average for city children in both stature and weight, while the heights and weights of Negro children under four years of age as compared with white children of the same ages showed a deficiency in weight of 11 ounces for boys and 9 ounces for girls, and stature deficiencies of two-fifths and one-fifth inches respectively. These deficiencies, greatest at one year of age and under, may result from the poor nutrition and unfavorable social and economic conditions that cause a high mortality rate among colored infants or, perchance, may be due to a racial difference in rate of growth. At five years of age practically no difference in average height and weight is found between white and Negro children. Besides showing the present average heights and weights of the younger children of America, these records form a basis for measuring possible future progress in physical development.

The Children's Bureau has also published a report entitled "Maternity and Child Care in Selected Rural Areas of Mississippi," which shows that country life does not necessarily insure hygienic living conditions. The mother of every baby born within a selected two-year period was visited, a total of 675. The inadequacy of prenatal care shown in this study is comparable to that in other rural areas studied by the Children's Bureau; not more than 17 per cent. of the 675 mothers had received any type of prenatal care. Failure to recognize the need for such care was in large measure accountable for its lack, though other factors, such as distance from a doctor, entered in. Only two-fifths of the mothers studied were attended at confinement by physicians. The choice of attendant was apparently a matter of custom; 79 per cent. of the white women secured the services of a physician, and 88 per cent. of the colored women employed midwives.

Essential features of the general constructive program recommended by the Children's Bureau for the conservation of the lives and health of older children, as well as of mothers and babies, include: The employment of a county public health nurse; the full-time employment of a well-trained public health official; a conveniently located county hospital; strict enforcement of the birth and death registration laws and of the law to prevent blindness in the new-born; control of midwifery practice.

Death of Monprofit.—The recent demise of this well known French operating surgeon recalls the type of medical man who prefers to settle and remain in his native town despite the urge to locate in the metropolis. The deceased was born, lived and died in Angers, where he built up a surgical clinic of the first rank. His book on surgery of the stomach aided in establishing his reputation. Although not of Paris, he spent much time there in attendance at the sessions of the Academy of Medicine, Society of Surgery, etc. He became mayor of Angers and later represented his fellow citizens in parliament. The Parisian surgeons were glad to visit his surgical clinic and witness his operating skill, and not to have attended this clinic was to be unknown as a metropolitan operator. But the deceased was a home town man in other ways, for he was at the head of the local medical school. Interested in journalism, he was syndic during 192[illegible] of the French Medical Press Association. He entered the war as a plain surgeon-major of the second class and emerged from it with five stripes and the cross of the Chevalier of the Legion of Honor. The war exhausted him and he was seldom seen in Paris of late years, although he attended the recent Strasbourg medical congresses and delivered a fine oration which seems to have been his last public effort.—*Gazette des Hôpitaux.*

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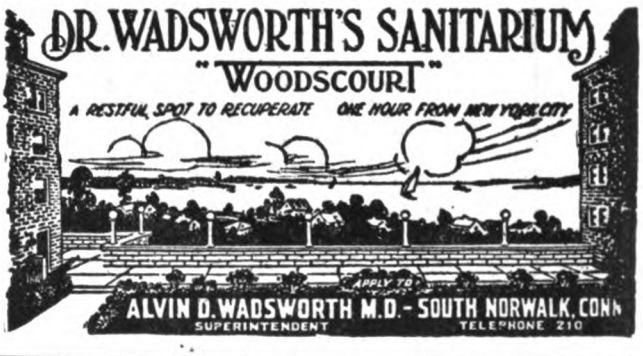

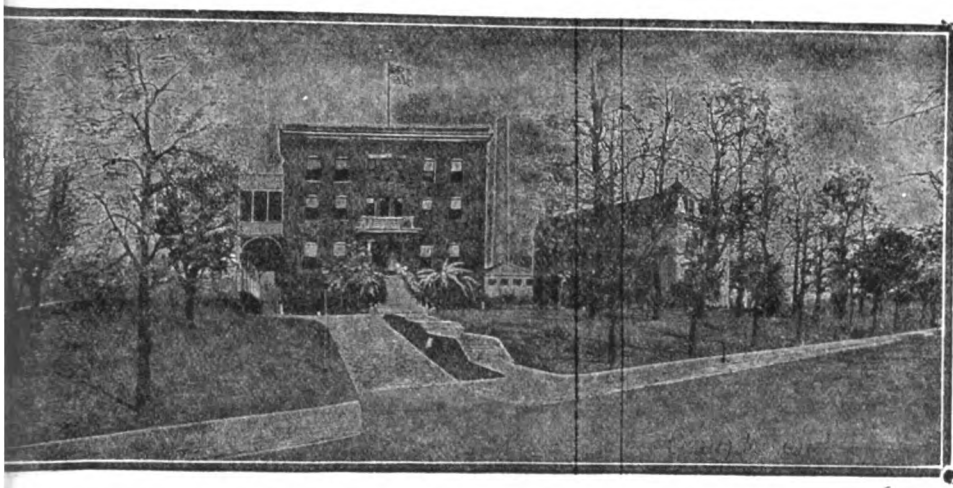

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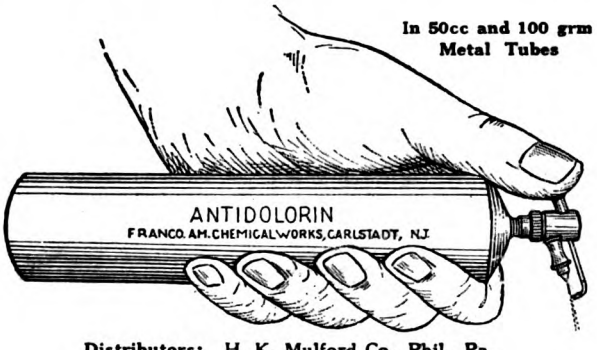

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